University of Alberta

CORPORATE SOCIAL RESPONSIBILITY AND THE ENVIRONMENTAL AGENDA

by

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A thesis submitted to the Faculty of Graduate Studies and Research
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Dedication:

This thesis is dedicated to my two sons, Nathan and David, in the hope that their world and the world of their children and all children will be sustained by ecological values, allowing the existence of Nature's beauty, and health for all.

Abstract

This thesis examines how organizations interpret and respond to various pressures for sustainable environmental management. This research identifies five major pressures regarding firm behavior, examines how firms respond in different ways to these pressures, and offers two distinct and contrasting storylines that illustrate firm behavior.

A sample of six chemical facilities near Edmonton in Canada was chosen in order to eliminate as many demographic and context variables as possible. These firms co-exist in a limited geographic vicinity with identical political and regulatory pressures, and similar social pressures, yet large differences in attitude and practice are apparent.

This research examines the academic literatures of corporate social responsibility, stakeholder theory, and issues management, as well as management literature that addresses environmental issues. Over fifty interviews with corporate executives and employees, and individuals representing the community, activist groups, and government were undertaken. Over 800 pages of transcript data were generated, then coded and re-coded using a grounded-theory-like analysis process, resulting in 260 indicators regarding factors of influence. These indicators were further categorized into five major pressures which are broadly defined as: Economic, Government and regulatory, Community, Internal, and Customer.

A storyline was found in each firm which claims to support sustainable values. A contrasting business-as-usual storyline, focusing on unavoidable economic and regulatory pressures, significantly constrains this practice of more sustainable behaviors. The firms have a range of behavior from doing nothing to doing much, once they have met mandatory economic and regulatory conditions.

This research found that economic factors drive most environmental behavior including behavior beyond economic and regulatory demand. Overlap between the economic and sustainable development storylines is sought and desired by the firms. Firms claim that social responsibility is a driver of environmental behavior, but corporate social responsibility is commonly used as politically acceptable rhetoric that expresses economic concerns.

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INTRODUCTION

The past century has seen breathtaking gains in human welfare, but these gains have been largely at the expense of the ecological health of the world. Since 1900: the world's population has multiplied more than three times; the world's economy has grown by a factor of twenty; the consumption of fossil fuels has multiplied by a factor of thirty; and industrial production has increased fifty times. Eighty percent of this growth has been since 1950 (Buchholz, 1991). Because the majority of this growth has been achieved in the past half century it is not surprising that non-renewable resources are being depleted at increasingly rapid rates, and the global environment is being degraded by an overflow of pollutants and waste products. This change is even more dramatic when viewed as a metaphoric second in ecological time.

As we approach the third millennium, it is apparent that society must reconcile economic activity with the limits of our planet. Just as the firm does not exist in isolation from the local community, the economic subsystem does not exist in isolation from global society. Economic well-being for all people can only exist within an ecosystem that has sufficient energy and resources to support them, and which is used sustainably by all. Economic and business study needs to acknowledge that the economic system is not an entity in and of itself but is a subsystem of a larger social and ecological system (Daly & Cobb, 1989; Etzioni,1988; Schumacher, 1973). Economic activity can only be sustained if society recognizes that economic activity must function within the ecological limits of Earth (Daly, 1977).

The natural environment does not recognize political, institutional, or social boundaries. The ecological and environmental consequences of unsustainable human and business practice is threatening to species survival including humankind. Damage to the earth's ecological system exerts pressure on the well-being of all people and all firms in the global commons. Because the large national or international corporations are central to the workings of the global economy, the responsibility for ecologically sustaining development and behavior falls in part to them. The survival of the global ecological system is dependent on the development and adopting of conserving and sustaining values and practices within all societies and corporations world wide.

Parts of the world's political community are increasingly aware of the limited ability of earth to accept continuing ecological degradation, as shown by the 1992 United Nation's environmental conference in Brazil and the 1995 conference in Berlin regarding carbon dioxide emissions. There is "a new urgency to halting environmental damage, cleaning up the effects of past practices, and creating a new relationship between economic activity and environmental concerns" (Post, 1991: 34). The world has moved beyond economic interdependence to ecological interdependence, and awareness of the need to mesh economic and ecological concerns. This interlocking is "the new reality of the century, with profound implications for the behavior of our corporations and institutions of governance" (MacNeill, Winsemius, & Yakushiji, 1992: ix).

For an organization to retain its viability as a business, and to retain its social legitimacy and power, it must respond to society's needs, and give society what it wants (Davis, 1973; Sethi, 1979). In a broad sense, as individuals and societal groups demand greater environmental accountability from organizations, sustainable economic success for corporations will require business strategies that recognize, respect, and act upon ecological constraints. Recognizing ecological constraints is less comprehensive than achieving sustainable development, and recognizes that our society currently allows environmental degradation and unsustainable practice within controlled and regulated limits. The severity of these limits is the debate between ecologically and economically minded proponents, but these limits are becoming increasingly stringent and firms are being more heavily punished for non-compliance with regulation.

Corporations and business organizations need to change and to recognize the ecological limits placed on their operations. This follows from the realization that the economic system is a sub-system of societal and political systems, and only a small part of the ecological system. It follows that successful managers in the decades to come need to adopt and implement strategies based on sustainability (Stead & Stead, 1992). Business organizations have proven time after time that they can successfully adapt their cultures and practice to new contextual conditions when necessary (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Powell & DiMaggio, 1993; Zucker, 1987). The core value of sustainability addresses the inter-relatedness of the ecosystem and the economic system. Sustainability supports a vision of firms surviving over the long-term by integrating their need to earn an economic profit with their responsibility to protect the environment and resources long-term. This shift toward environmentally aware practice while maintaining economic viability is a critical task for corporate management.

THIS RESEARCH PROJECT

This research project examines the response and interpretation by chemical firms in Northern Alberta to pressures for environmental awareness and sensitive environmental practice. Through qualitative analysis of interview transcripts, these pressures are identified, and firm interpretation and understanding is examined (Research Note 1 (RN -1), please see footnote).

Footnote: Research notes (RN) are used throughout this work to present researcher interpretation of the research process itself or to clarify terms unfamiliar to the reader. These notes are explanations and personal comment that would detract from the flow of the narrative in the dissertation itself, yet are important for reader understanding on the context of the research. These research notes are found prior to the bibliography.

With Clegg and Dunkerly (1979) I believe that work organizations are complex entities that operate in divergent and even conflicting ways, and that organizational research must reflect these complexities instead of simplifying or ignoring them. The goal of research should be to produce accurate and useful results (Alderfer & Smith 1982), not only for other academic researchers, but for assisting those involved in the area to understand their own situation (Martin & Turner 1986; Turner, 1983;). To allow theory to emerge that is informing to both academics and practitioners, the close analysis and categorization of qualitative data through analysis of practitioner transcripts forms the backbone of this project. This methodology uses many procedures from grounded theory, but is not grounded theory.

Grounded theory was first used in the study of organizational processes (Glaser & Strauss, 1967). An ongoing problem with qualitative research generally is that much data is generated, much of this data in non-standard format, and the data cannot be predicted in advance (Turner 1983). One advantage of grounded theory methodology is that "facets of the research data ... are converted into a concrete, manipulable form which can be analyzed by means of consciously adopted strategies rather than by hidden, intuitive means" (Turner 1983: 334).Grounded theory is highly rigorous because of the discipline of method involved, and this quality results in complex theory which enhances the utility of the theory. A disadvantage of grounded theory, at least of the original research method (Glaser & Strauss, 1967) is the demand that all findings emerge from the data, that the researcher admit to no prior knowledge or bias regarding the research question, and that prior research or related fields are not expected to influence the current research project. These prior conditions have not been met and so this research does not claim to follow the grounded theory model even though many aspects including the rigor of grounded theory methodology were used (RN -2).

A focus of this research includes the ways that various influences or pressures on the corporation are evaluated, weighed, and judged during the interpretation process regarding environmental action (RN-3). This research assists in the explanation and prediction of corporate response to various social, political, legal, and economic pressures for environmentally aware behavior.

In a broader sense, I hope this research will make a contribution to the solution of environmental problems facing our business organizations, our communities and society.

FRAMEWORK OF THIS PROJECT

Chapter One lays the groundwork for many of the issues that inform this research project. The corporation is a part of society and corporate social responsibility is an increasingly significant aspect of social and economic legitimation and viability. The issue of sustainability and growth in a finite world is discussed, leading to certain understandings about the ecological state of the world. Chapter One continues with a review of the literature in four fields that inform the research question. Corporate social responsibility and stakeholder theory were examined during initial data collection and analysis. This literature offers both a framework and grounding for further research. The literature regarding corporate environmental management was examined during early stages of data collection for this research. An examination of the Issues Management literature was added after the data collection was complete and during analysis to enhance understanding and to clarify problems raised by the evolving nature of the study. The initial research question is presented at the end of Chapter One.

Chapter two explains the choice of research methodology for this project, founded on case method and rigorous grounded-theory-like analysis techniques. Caveats are offered regarding the suitability of this methodology. Chapter Two identifies the sample of the six Alberta chemical firms used in this research. These firms share nearly identical social, regulatory and legal pressures. The choice of these six sites is justified, as well as an explanation of the choice of the fifty-three respondents from in and around these sites.

Chapter Three presents the data analysis in the form of six case studies. Each case study is enhanced by summary tables showing the importance given by each firm to the one hundred indicators examined for each firm. These indicators are broken down into twenty categories, and finally to five pressures. Over eight hundred pages of interview transcripts were repeatedly coded and categorized. These coding and categorizing procedures are explained. The search for similarities and dissimilarities across all six firms is explained. Cross-firm analysis using the one hundred data-point indicators is done, resulting in an understanding of the drivers influencing each firm's environmental behavior. Three tables illustrating the relative importance of various pressures to each of the six firms are presented in Appendix J.

Chapter Four presents the analysis summary including the presentation of the dual storylines found in the data. The five pressures are reviewed from both the sustainable behavior (SB) storyline and the business-as-usual (BAU) storyline.

Chapter Five offers implications and the conclusions and evolved theory about chemical firm reaction and response to pressures regarding environmental awareness and behavior. Implications and suggestions for further research are offered.

I hope that the material that follows helps to inform discussion, improve corporate practice, and provide directions for further inquiry on corporate environmental practice and management.

CHAPTER ONE - GROUNDING

1.1 CULTURAL AND SOCIAL CONTEXT

> "The final new reality in the world economy is the emergence of the transnational ecology. Concern for the ecology, the endangered habitat of the human race, will increasingly have to be built into economic policy .... We still talk of "environmental protection" as if it were protection of something that is outside of, and separate from, man. But what is endangered are the survival needs of the human race" (Drucker, 1989:133).

Business is an open and dynamic entity interconnected with society. All resources flowing into a business come from the social and natural environment. All products flow back to the social environment; waste and pollution largely flow back to the natural environment and effect the social environment; all human resources serving the business also occupy other roles in the social environment. If an organization does not respond sympathetically to society's demands (Davis, 1973; Sethi, 1979), inputs may be cut-off, outputs rejected, and the human resources unwilling to contribute to corporate well-being (Morgan,1988). Corporations ignore this societal interconnectedness at their peril. A systemic view suggests that "social responsibility should be central to how managers think about their relationship with the wider context" (Morgan, 1988:166). The rationale for the existence of an organization, including goals and objectives, and even the human resources that shape the organization's products and services, is constrained and molded by its cultural and social context (Strand. 1983).

Public concern about the natural environment has increased steadily since the early 1960s. This is reflected in the rapid growth of membership in environmental organizations, and with the increasing influence of political parties with environmental concerns throughout the world. Environmental parties have won seats in the parliaments of Australia, France, Germany, Italy, Sweden, the U. K. and the European Parliament (MacNeill, Winsemius & Yakushiji, 1992). Increasing social demands, including environmental demands, from citizens have led to unprecedented levels of consumer advocacy, social activism, and legislation aimed at changing the way corporations do business, particularly in North America and Europe. These volatile and complex economic, technological, political, ecological, and social demands are "leading to the speedy restructuring of all old industries..." (Peters, 1990: 76). Legitimation for any firm is no longer achieved by simply following the legal and regulatory constraints upon business practice, although this compliance is necessary. Firms must also achieve legitimacy within their social and political environments. The traditional economic and legal criteria are necessary but not sufficient conditions of corporate legitimacy (Sethi, 1979).

Because business and society are interwoven, society has "certain expectations and vested interest in environmentally appropriate business behaviors and outcomes"

(Wood, 1991b: 695). These changing societal expectations often exceed the also changing government regulatory and legal requirements (Carroll, 1979). Distance can be expected at times between business performance and societal expectations, but long-term indifference by business to societal expectations "scares the public (and) undermines confidence" (Morgan, 1988: 13). The interdependence of business behavior and societal expectations combined with increased community and political control of corporate behavior means that socially responsible action by corporations is no longer a discretionary luxury to be undertaken as a type of philanthropy.

A myriad of business and society interdependence patterns exist, and it is impossible to describe a single pattern followed by all organizations. Socio-cultural and political phenomena are difficult for any corporation to analyze in precise quantitative terms, and this analysis is made more complex because of internal corporate structures and systems that may bias perceptions in unexpected ways. This does not mean that understanding the objectives and behavior of specific firms is not possible, but does suggest that every firm identifies various influences and pressures that are specifically significant to them, and then likely interpret these influences and pressures in highly idiosyncratic ways as well (Bhambri & Sonnenfeld, 1988). Pressures for improved environmental performance is only one pressure among many facing the firm, and is interpreted and balanced against other pressures as part of the complex general context facing the firm.

With societies' expectations upon business being multi-faceted, the attempt to understand and judge the various pressures and constraints on corporate behavior is very complicated. Several messages are being received at once. The economic message often includes increased demands for production at cheaper costs, while the ecological message may include the demand for safer and more environmentally sensitive production regardless of cost. These messages may be purely ideological at times, and are often both pro-environmental and pro-economic growth and development at the same time. These objectives are sometimes compatible, but more likely are not. In 1990, the USA Environmental Protection Agency estimated that one hundred billion dollars was spent on pollution abatement, and that this cost would be two hundred billion by 1995 (Post & Altman, 1992). This is more than two percent of the American gross national product being spent for environmental and natural resources protection. Compliance with environmental regulation consumes up to one-third of capital funding in some of the chemical firms in this sample.

Individuals, corporate bodies, and societal groups all influence one another interactively. Just as corporate behavior affects individuals, communities and society in general, so do individual, community and societal groups influence corporate bodies. Societal expectation influences both organizational attitude and behavior. The degree of congruence between corporate behavior and societal expectation can be seen as a perceptual measure of corporate social responsibility. Socially responsible behavior for any firm should not be viewed as a fixed position or behavior, but as a dynamic stance taken relative to fluctuating societal expectations. Societal expectations in different jurisdictions or situations are variant as well, and may be specific to individual firms. Expectations and demands from society change, often very rapidly, presenting a moving target of acceptable achievement for organizational decision-makers. A corporation perceived as socially responsible today, if unchanging in behavior, is likely to be seen as socially irresponsible in five years time.

The ecologically and environmentally concerned agenda presents great challenges to organizational practice because it deals mainly with organizational externalities that have been largely ignored by corporate leadership until very recently. Most production activities have some unintentional or indirect consequences for society, and these second order effects have traditionally been borne by society as a whole. These second order environmental effects may include, noise, odor, waste, or even health and safety hazards to the community. Other externalities of business practice may include unsafe work environments, pollution of rivers and the atmosphere, and unsustainable practices regarding the use of natural resources.

Environmental monitoring and boundary spanning by most corporations can be taken as given (Strand, 1983), but social demands and expectations can be processed within an organization only to the extent that this monitoring exists. To meet environmental demands, the firm is required to make a determination of what constitutes proper behavior, but a decision-making process is also required to determine which influences and alternative behaviors are to be allowed into the decision-making set in the first place. (Mitchell & Beach, 1990). This process may be unconscious. This process may be driven by ideology, economic need, corporate culture, or some other institutionalized stance. Without appreciation of ecological and environmental constraints, it is unlikely that monitoring concerned with environmental and ecological factors will occur. Corporate response to social demands can be relatively passive, but the chemical industry, for one, believes they are leaders of social awareness and opinion regarding safe environmental practice.

Competing and contradictory demands confuse corporate understanding as to which behaviors are considered responsible or not. Which priorities to consider the most beneficial for the organization or society is also confusing. These demands can be contradictory, as for example the demand for more electrical capacity through the creation of dams, contrasted with demands for preservation of natural habitats. Yet business performance is expected to be compatible with prevailing social expectation, even if this expectation is vague and multi-faceted. The firm that ignores everyone but their stockholders, for example, is a likely target for community attention and perhaps even punitive legislation or litigation. The narrow economic niche including stockholder concern which business organizations traditionally occupied is gone. Non-economic stakeholders have greatly enhanced influence on corporate practice, adding their demands to existing economic demands, and making the management of corporate organizations much more complex than in the recent past.

One potential solution to this confusion of competing social, political, and economic demands is sustainable corporate practice. Sustainability focuses on a healthy economic system operating within a healthy social system, operating in turn within a healthy ecosystem. Sustainability provides a framework for a value system that, when implemented in business organizations, encourages decision making that is both environmentally sensitive and economically strategic. The realization that the Earth has limits suggests that sustainability can be viewed as a matter of efficiency; therefore, valuing sustainability encourages managers to constantly explore more efficient ways to use energy and resources in the production and distribution of their goods and services. Neither unlimited economic growth nor the elimination of economic growth benefits the human inhabitants of the planet, but sustainability allows economic activity that accounts for the Earth's limits.

The obstacles to sustainability are social, institutional, and political, as well as technical. Technical constraints alone would be less frightening (Daly & Cobb, 1989). It is often assumed that supply will ultimately limit the use of nonrenewable resources but for some products, such as sulfurous coal, it is more probable that their use will be limited by the negative impacts of their use on renewable resources such as soils, water, forests, and the atmosphere. Global sustainability cannot be achieved if found in only a few companies, industries, or nations. Achieving sustainability will require that economic enterprises world-wide adopt sustainability strategies. The complexities of such a task are enormous, bringing to bear some of the most crucial social issues related to the long-term survival of the planet (Stead & Stead, 1996).

In past generations society built its hopes on the concept of unlimited economic growth, but this growth is largely unsustainable (MacNeill et al, 1991). The Earth's basic life-supporting capital of forests, species and soils is being depleted along with its fresh waters and oceans, and at an accelerating rate. Global problems such as global warming and the depletion of the ozone layer threaten the entire planet and require international cooperation for their solutions (Buchholz, 1991). Given the potentially catastrophic consequences of ozone depletion and other disasters the insurance of sustainable practice seems prudent and inexpensive. This insurance is especially cheap when we understand that the most cost effective measures are sound investments in their own right, cutting energy bills and increasing a firm's efficiency and competitiveness.

1.2 LITERATURE REVIEW

Concern with the natural environment is not a major field of interest in the organizational theory literature, aside from the subgroup of Crisis Management literature. Articles in strategic journals are concerned with responsiveness and productivity questions, or "greening" and public relations as a marketing advantage. Organizational theory journals express very little interest in environmental or ecological sustainability, although interest is expressed in corporate culture, which in turn broadly affects corporate interpretation of pressures for certain behaviors. Organizational behavior journals express interest in leadership or personal motivation and other micro issues, and again these are peripherally concerned with the work of this project. The business and society journals provide background regarding the broader questions of corporate social responsibility, corporate ethics, stakeholder theory, and the interface of business with the broader society and the ecology of that society.

The usual procedure in academic research is to do literature reviews in the general areas of interest. The researcher attempts an exhaustive review of previous studies and then disregards or discards those deemed of lesser quality, and then summarizes the content of the remaining group (Yin, Bingham & Heald, 1976). This review can start off very broadly and then become more specific, or may start off with a very limited perspective. This is a breadth versus depth problem, given time constraints. Most common are selective searches in highly contained sub-areas of interest, or even more specifically to a certain perspective or ideologically determined slant on a given question. Literature reviews must be understood as a means to an end. The purpose of the literature review is to view previous research and so "develop sharper and more insightful questions about the topic" (Yin, 1984: 20).

The literature review usually provides the context and overall awareness of factors regarding the research question, and demonstrates that the research is timely and important. One broad awareness for this research is the awareness that organizational behavior toward the natural environment must become more ecologically sustainable. The ecological literature confirms the potentially disastrous consequences of current economic practice (MacNeill, et al, 1991). Yet most literature regarding organizational management is focused on short term economic and efficiency goals, and environmental or ecological concerns are very minor considerations if considered at all. The literature from business and society journals confirms the interdependence of individuals, communities, organizations and governments, and the essential cooperation needed to affect significant societal and ecological improvement (Hutchinson, 1992). The questions explored in this research are timely and important, and tries to place business practice firmly in an ecological and societal context.

The research question did not evolve directly from the academic literature reviewed, although of course literature reviews do inform this research. The conclusions of this research in turn inform the management field. Broad concern with ecological sustainability was the start of this dissertation work. Awareness of the effects of historical and current non-sustainable business practice was also a prior-to-research awareness. The literature on corporate social responsibility speaks to these concerns and was viewed during the initial data collection and analysis. The question of how to view the organizational interface with various external and internal interest groups lead to an early review of the stakeholder literature. The specific research question had still not been defined although the areas of interest had certainly been identified. These two literatures provided a context and framework for further search. There is remarkably little literature in the academic business journals regarding corporate management of environmental issues, although there is more concern expressed in the popular business press. The research question evolved from a fairly general interest in sustainable business practice to the more specific focus of corporate interpretation of pressures for sustainable practice.

The following four literatures are relevant to this research. The literature on Corporate Social Responsibility and on Stakeholder theory were both examined in early stages of the research, articles about environmental management in the academic business journals examined part way through the research, and Issues Management after the data analysis was almost complete. All are relevant to this research .

1.3 ORGANIZATIONAL MANAGEMENT AND THE ENVIRONMENT

Academic writing and research on business and organizational management of environmental and ecological issues is a relatively recent addition to research about business management. Much writing about the interface of the environment and business, until very recently, has tended to focus on corporate success stories and anecdotal cases (Ferguson, 1989; Zetlin, 1990). Many ecologically focused books and articles are available, but few relate directly to business management of environmental or ecological factors. Some empirical work on environmental management is now appearing in management journals. This brief section will review a few of the representative books that deal with corporate management and the environment, then will examine more closely the empirical work found in academic journals, as well as published research from the American Environmental Protection Agency and other research organizations. This is a literature of growing importance in the organizational management field.

Non-empirical Work:

Gore (1992), currently the American vice-president, makes a brave call for making the salvation and rescue of the environment central to any future economic development world-wide. Gore believes a sustainable society is essential for habitable life on Earth. He argues for a comprehensive change to the economic paradigm of growth and development which has little concern for ecological realities. Gore does not deal with specifics of how this paradigmatic shift might take place, but does offer the normative argument as to why this shift is necessary.

Cairncross (1991) calls for sustainable economic development, focusing on industry and government cooperation and alliances. Cairncross believes that good management and good quality result from "green" management. She calls for greater efficiency and effectiveness in corporate management, better communication between the corporation and various stakeholders, and measurement of energy use and waste creation. Cairncross believes that good environmental behavior creates a competitive advantage for the organization, and that early movement to pro-active environmental concern has long-term benefits.

Stead and Stead (1996) argue forcefully for a new economic paradigm which includes environmental awareness and concern for the ecosystem. Both economic and ecological sustainability should be core business values, requiring a long-term strategic focus and acknowledgment of ecological constraints on business practice. Stead and Stead identify the barriers to sustainable practice as a combination of economic, physical, social and cultural factors.

Fischer and Schot (1993) discuss how industrial firms have managed the pollution aspect of what they term the growth crisis, and discuss the complex and subtle relationship between changes in firm behavior and external pressures. This book is the most similar of any found to the work of this project. Fisher and Schot claim four pressures affect firm behavior: regulatory pressures, credibility pressures, market pressures, and financial pressures. Fisher and Schot conclude that the major drivers for positive changes in environmental behavior for corporations are fear of developing a bad image with communities and broader society, and government regulation. They also offer explanations as to why obstacles to sustainable development are very real, and perhaps overwhelming for most individual companies.

Dozens of other books dealing with corporate interconnectedness with the natural environment are also available. The books noted here all call for radical change regarding corporate relationships with the environment. Economic frameworks need to be created that account for environmental costs, and this includes the costs of externalities such as ground water pollution or air-borne emissions often ignored today. This literature also suggests that although some firms are achieving responsible behavior, most are not, and need either the push of regulation, the pull of the market, or force of enlightened leadership, to cause them to change.

Many articles about business and the natural environment have appeared in the business press that offer opinion and review or explanation without presenting empirical evidence. These articles appear regularly in journals and magazines such as Business Horizons, Business and Society Review, Forbes, Harvard Business Review. Journal of Business Strategy, Long Range Planning, Public Administrative Review, Sloan Management Review, and Technology Review (for representative articles see: Buchholz, 1991; Chouchi, 1991; Daneke, 1982; Einsman, 1992; Hunt, 1990; Kleiner, 1991; Ottman, 1992; Silverstein, 1988; and Spenser, 1991;). This type of article often explores internal corporate operations, and often offers insight into how environmental issues affect various areas of firm activity including production process, marketing, strategy, decision-making, and goal-setting.

Empirical Work:

Logsdon (1985) examined ten of the top twenty oil American refining companies and their response to air pollution as a social issue from 1940 to 1980. Logsdon documents the early response of some firms prior to regulation, which she claims raised awareness throughout the industry. Top management's attitude and commitment are cited as a key factors determining environmental adaptation. Logsdon documents that firm response to an increasingly stringent regulatory environment varied extensively between the firms, ranging from resisting to accepting.

Arthur D. Little (1989) analyzed American corporations for a decade and developed a three-phase framework of environmental approaches. These phases are: "problem solving" which is mainly avoiding costs; "managing for compliance" which is current compliance with regulation but with little future planning; and "managing for assurance" where major investment is made in environmental behaviors even though short-term financial pay-off is minor, if present at all. This framework is similar to Logsdon's (1985) with corporate response to external demands ranging from resisting to accepting, but adds the future-oriented anticipating response.

Hunt and Auster (1990) created a five-stage continuum, similar to the Little (1989) study, of how corporations respond and develop environmental cultures. The first stage of the Hunter and Auster continuum was "beginner" where no environmental policies exist, and where no concern about environmental behavior is evident. Stages two and three are similar to the avoiding costs and compliance stages of the Little (1989) framework. The fourth stage of Hunt and Auster's continuum is a "pragmatist" stage where environmental policies are perceived as important by management, but are not a priority, and this is followed by a fifth level similar to pro-active stage of Little's (1989) framework.

Schot (1991), based on surveys and interviews with eight chemical companies, created a five stage strategic model of corporate environmental performance. The first three stages are similar to the Little (1989) framework, from problem-solving to managing for compliance to managing for assurance. Schot adds two more categories. The fourth category includes firms that seek ecological soundness on a company wide basis. Schot claims that firms in the fourth category realize that environmental awareness by all employees leads to competitive advantage in the future, as a better system creates more attractive products for customers, and less liability and risk because of cleaner production processes. The fifth category is mostly strategic with new firms being spun-off from existing firms to fill perceived gaps in a marketplace searching for ecologically sound products. In a broad sense, Schot's third, fourth and fifth categories could all be subsumed under Little's (1989) category three. No philosophical grounding in ecology is offered by Schot, and his performance response categories are strictly managerial choices based on strategic and economic considerations.

The three continuum studies all offer a range of corporate response to environmental pressures, ranging from doing very little to doing very much. This range of behavior could also be called reactive to pro-active. The empirical pieces suggest that most firms are in movement and change from the reactive to the pro-active side of the continuum. Very little notice is given as to why firms undertake this shift, the unstated assumption being that they must or face economic or social punishment.

The American Environment Protection Agency has funded research projects investigating industrial responses to various types of environmental regulation. There are two research projects that deal specifically with environmental issues and the chemical industry, one by Barum, Dillon and Ruffle (1992) and the other by Dillon and Fischer (1992). Barum et al (1992) reviewed chemical firm response to legislative demands that firms develop a communication process regarding public risk assessment related to chemical hazards. They found that management's greater public awareness created more top management concern with societal risk. Barum et al (1992) conclude that if externalities of product or process are more visible to the public, then public reaction to these risks is more likely and because corporate management recognizes this concern their corporate environmental behavior changes positively.

Dillon and Fischer (1992) did fifteen case studies of chemical firms in an attempt to identify "organizational components" that create more pro-active behavior and reputation. Dillon and Fischer (1992) divide these components into internal and external factors. The external factors include financial and regulatory pressures and awareness of environmental disasters. Internal factors include firm values, concern for reputation, and top leadership. Dillon and Fischer (1992) place emphasis on top leadership's personal abilities, experience, commitment, and flexibility to adapt effectively to new conditions. Again, no explanation is offered as to how these pressures for changed behaviors are interpreted and balanced.

Post and Altman (1992) conducted a three year study of three companies' environmental programs. Developmental models of corporate "greening" are offered from a combination of factors emerging from the data and from the literature. Post and Altman conclude that change in management core values is required to create a related shift in practices and process, which in turn results in a changed "green" organizational culture. Organizational structures, processes, values, policies, reward systems and other organizational factors must all be coordinated to achieve concern for ecological issues.

This growing body of environmental management literature demonstrates the interconnectedness of ecological, environmental, managerial, and economic issues. What is missing is a strong ecological awareness base to much of this work, especially in the empirical pieces. This ecological base should recognize the limits of a finite planet and the responsibilities of the corporation to this reality. Most organizational research deals with pragmatic response to compelling economic and regulatory pressure. More recent work now includes organizational response to more social and non-economic pressures.

1.4 CORPORATE SOCIAL RESPONSIBILITY

Business has the power to effect change in society because business decisions can result in intended or unintended consequences that bear on the interests of others. An intended consequence may be the production of a product for public consumption, whereas an unintended societal consequence may be air-borne pollution from smokestacks as a side-effect of the production process while making the firm's product. Because of the interconnectedness of business behavior with the whole social system business decisions need a broader base than simple profit or other economic criteria (Davis, 1990). Because of the power, impact, and interpenetration of business with the social system, responsible corporate behavior, including environmental awareness, is a societal expectation for any business (Klonski, 1991). Academic studies have examined corporate social responsibility activities in many specific areas including: the environment, affirmative action programs, equal employment opportunity policies, community involvement, product safety, policies toward South Africa, energy policies, and social responsibility disclosure (Roberts, 1992).

Although corporate social responsibility is by no means a new issue, discussions about social responsibility and the corporation have received increasing attention in the past fifteen years. The growth of interest in corporate social responsibility is closely linked to society's heightened sensitivity to the so-called externalities of business activities such as various forms of pollution and waste. Zenisek (1979) argues that understanding the phenomenon of corporate social responsibility requires an investigation of (a) managerial attitudes concerning, and (b) organizational behaviors resulting from the demands and expectations of society of business.

Corporate social responsibility is often broadly defined through policies or actions which identify a company as being concerned with socially-related issues. Various definitions of social responsibility have been advocated, and there are five key elements in most of these definitions: (1) corporate responsibilities go beyond the production of goods and services at a profit; (2) corporate responsibilities include helping to solve important social problems such as pollution, especially if these problems were in part created by the firm; (3) corporations have a larger constituency than stockholders alone and so should exert some effort in satisfying these broader constituency demands; (4) corporate transactions have impacts that go beyond the specifics of any single marketplace transaction; and (5) corporations serve a wider range of human values that cannot be captured by a sole focus on economic values (Buchholz, 1991). Behavior favorable to the natural environment by corporations can be subsumed under the broader theoretical umbrella of corporate social responsibility.

The literature on corporate social responsibility provides a broad theoretical structure for further discussion of the interconnectedness of business and society such that the weight of economic considerations is not overwhelming. Since corporate social responsibility is a dynamic process, improving corporate social behavior means altering corporate behavior to produce fewer harms and more beneficial outcomes for society over time (Wood, 1991). Corporate social responsibility can be seen as the firm's response to issues beyond the economic, technical, and legal forces pressuring the firm (Davis, 1973). The socially responsible firm seeks broader social objectives along with traditional economic objectives (Carroll, 1979; Wood, 1991), and so likely concerned with social legitimation and positive public perception of their behaviors. Societal expectations regarding the environmental and other social consequences of business activities are largely enforced through government regulation which also affect a broadened constituency of employees, consumers, local communities and other groups (Heard & Boyce, 1981).

It is wise to view corporate social responsibility through a contextual lens which understands a social environment which is constantly changing and becoming increasingly complex. The determination of corporate responsibility is culturally, socially and politically determined and can change over time. Expectations of "correct" behavior vary across jurisdictions and countries even for the same corporation (RN-4). The element of time must be considered in evaluation of corporate social responsibility as "correct" behavior of a generation ago may be totally unacceptable now. Not only does the definition of acceptable practice change over time, but environmental benefit is often lagged, that is, costs to achieve compliance are accumulated now but benefits may be realized far in the future. The calculus of corporate responsibility places heavy reliance on short-term results from the corporate point of view (Mahon & McGowan, 1991), especially when economic costs are offset by non-economic benefits. Ecological benefit often requires a long time frame, and ecological or environmental benefits may not even accrue specifically to the corporation itself though the cost of the benefit is paid with corporate capital.

Carroll's corporate social responsibility model identifies four corporate responsibilities: economic, legal, ethical, and discretionary or philanthropic (Carroll, 1979). Corporate social responsibility needs to address the entire spectrum of obligations business has to society, but cannot ignore the fundamental obligation of successful economic performance (Carroll, 1991). If the firm does not achieve its economic objectives, it will be unable to achieve any other objectives, economic or social. In Carroll's conceptualization, the legal category is largely subsumed within the economic category, and the ethical and discretionary roles are predicated on the achievement of the economic role. The ethical category demonstrates societal expectations over and above legal requirements (this being particularly relevant to environmental behavior), and the discretionary role allows for individual judgment and choice (i.e., it is not necessarily unethical not to act). Overlap is inevitable as these categories are not mutually exclusive, nor cumulative. Carroll's model claims that economic and legal concerns are critical to corporate concern, whereas ethical and discretionary concerns are added-on almost as extras. Carroll nowhere suggests that failure to meet what he terms ethical or discretionary concerns is critically damaging to the firm. Carroll's model suggests that firm economic success takes precedence over any other responsibility including responsibility to a broader community or society, although he does not go so far as to claim economic success regardless of ecological cost. Carroll's model is strongly economic in nature.

Any discussion about a corporation's role in society also requires a discussion of the role of legal and governmental regulation of business practice. Concepts of corporate responsibility generally reflect political ideologies to some extent. Cooperation with government in finding solutions to social needs is in the long-run best interests of individual firms and of business generally because business needs a healthy political environment in which to operate (Walters, 1977). Walters' identifies a conservative ideology which sees voluntary corporate responsibility as a less expensive alternative to legal and political regulations which in turn may constrain managerial autonomy and efficiency. Virtually all those who argue for greater social responsibility by corporations make the point that governmental regulation carries onerous enforcement and implementation costs, and so social responsibility can be motivated by an attempt to avoid or forestall costly regulation and bureaucratic intervention. This pragmatic management view includes the awareness that organizational legitimation is no longer granted only by traditional economic and legal criteria. Responsible corporate behavior implies sustaining corporate behavior at a level which is congruent with constantly shifting social norms, values and performance expectations (Sethi, 1979).

Social responsibility is often viewed solely as a matter of ethics or morality. Regarded this way corporate social responsibility is seen as an "extra" to be added to corporate decision-making (Morgan, 1988). A more systemic view suggests that

> "Social responsibility should be central to how managers think about their relationship with the wider context and how they approach corporate decision making. Although their efforts may seem distant and indirect, the social or "contextual" consequences of corporate decisions ultimately return to influence the organizations that make those decisions" (Morgan, 1988: 166).

This systemic view suggests that corporate social responsibility is more than a matter of ethics or morality, because corporate social responsibility can be pragmatic behavior made partially on organizational computations of cost effectiveness over the longer term. Viewed systematically, pro-environmental behavior can improve a firm's competitive position for two reasons: (a) lower material costs are possible through conserving and process improvement, and (b) the firm has the opportunity to differentiate itself and its products from its competitors. Several strategists suggest that cost leadership and differentiation are the two basic competitive advantages firms can develop (Porter 1985). Both of these advantages are afforded by sustainability strategies, strategies that not only improve the firm's economic success, but also allow the firm to exhibit socially responsible behaviors in the process.

The objectives of corporate social responsibility are multi-faceted. The institutional objective is to uphold the legitimacy of business in society. The organizational objective is to improve the firm's adaptability and fit with the environment and therefore improve profitability. The individual objective is to create a culture of ethical choice, which will support and encourage individual actors to exercise the options available to them in the fulfillment of corporate social responsibilities (Wood, 1991b). Corporate social responsibility offers a framework for managerial discussion of issues that are broader than short-term and firm-specific economic benefit.

1.5 ISSUES MANAGEMENT

Related to both Corporate Social Responsibility and Stakeholder Theory is the field of Issues Management. Issues management is defined as a process which allows the corporation to identify, evaluate, and respond to social and political issues which can significantly affect it (Jones, 1983). This definition leaves open the question as to how these identifications or evaluations of issues is done, how proper response is determined, or even how probable significant impact can be understood. These same questions are asked in this research project. In practice, issues management comprises "both anticipatory responses and responses to crisis when firms have been unable to anticipate and avert them" (Greening & Gray, 1994: 468).

All organizations scan and monitor their environment, and evaluate the importance of issues and implementing responses to some extent even if formal image management programs are not in place (Wartick & Rude, 1986). The more formal process of an issues management program can help a firm anticipate change in its external environment and so realize its business objectives by responding in a timely manner to these changes (Arrington & Sawaya, 1984). Issues identification requires that organizational leadership decide that a given issue is important to their specific organization (Daft & Weick, 1984; Dutton & Jackson, 1988; Thomas & McDaniel, 1990).

The connection to stakeholder theory (Freeman, 1984) is that all firms have multiple stakeholders, and these stakeholders all may apply distinct criteria in evaluating corporate performance. So, any given issue may be of significance to only some stakeholders and not others, and the firm may have to provide different responses to satisfy each of these stakeholders. Having multiple stakeholders suggests that the firm should "anticipate the multiple economic and non-economic criteria different constituents are likely to apply in assessing firm performance" (Fombrun & Shanley, 1990: 234). Legitimacy questions, and the importance of general environmental challenges to corporations, have been studied for thirty years (Davis & Blomstrom, 1966; Steiner, 1975). The notion that an organization receives benefit from having a legitimate reputation is a constant theme in organizational theory (Ashforth & Gibbs, 1990; Zald, 1978). Legitimation is granted when an organization's goals and objectives are endorsed or at least tacitly accepted by the organization's stakeholders. This endorsement from the various internal and external stakeholders does not have to be unanimous (Elsbach & Sutton, 1992), but must be supported by a large enough number of stakeholders to ensure organizational effectiveness (Pfeffer & Salancik, 1978). Stakeholder endorsement not having to be unanimous allows corporate discretion and choice as to which stakeholders to pay attention to, and some choice in the response to be taken to these demands. Legitimacy can be maintained even in the face of external attacks by some stakeholders or segments of society.

Some models of corporate social responsiveness (Votaw & Sethi, 1973) state that corporate responses are not forthcoming until pressure was applied from various constituencies, including regulators, community groups, employees and others (also shown by Post & Mellis, 1978). Issues management is seen as an outcome component of these corporate social performance models (Wartick & Cochran, 1985).

Taking a broader view, issues management can be seen as part of the public affairs function of the corporation. Public Affairs departments usually carry out governmental affairs activities, public relations, and community affairs activities (Marcus & Irion, 1987). The public affairs function in a firm can be a response to a recognized volatility in the external environment (Post et al, 1982). The public affairs function recognizes the need for formalized monitors and scanning of external stakeholders, and includes non-economic as well as economic concerns. Public affairs activities can enhance and protect the corporation, basically by improving the availability of information. Goodwill can also be increased, and risks and liabilities can be reduced (Marcus & Irion, 1987). The issues management process is the only part of the public affairs function that is forward looking and plans responses to future occurrences.

The benefits of the issues management process for a firm are many. Issues management can serve as an early warning system (Ansoff, 1980) for potential environmental opportunities or threats, and so minimize the 'shock' which sometimes accompanies social and political change. Issues management is sometimes justified by a recognition of the increasingly complex and turbulent business environment and to the corresponding shift in public expectations of business (Ansoff, 1980; Ewing, 1987; Jurkovich, 1974). Issues management can result in more systematic and effective responses to social issues, partly "by serving as a coordinating and integrating force" throughout the corporation (Wartick & Rude, 1986). Value can be added to the corporation decision-making process when more compete information is available, and the issues management process integrates monitoring activities to create better information, of both social and economic pressures.

A corporation with a mature approach to corporate social problems is likely to have a well developed issues management system (Post & Altman, 1992). In some firms, issues management activities are institutionalized and form separate departments, and this suggests a higher level of image management development than does a less formal arrangement (Greening & Gray, 1994). Holmes (1978) determined that permanent departments were more likely when technical expertise and monitoring of internal and external environments was required by regulation. The formation of full-time corporate environmental affairs units

> "indicates, at a minimum, that top management is sufficiently concerned about the future consequences of public policy initiatives to monitor the political environment and participate in legislative and regulatory activities" (Logsdon, 1985: 61).

Given the pro-active nature of issues management, issues management allows the organization to organize its expertise to enable it to participate effectively in the shaping and resolution of public issues, particularly those that may impinge on its operations (Arrington & Sawaya, 1984). Issues Management offers a way to integrate this anticipation of social and public policy issues into the corporate decision-making process. Social issues management is interactive and not only reactive. Organizations often make efforts to provide positive interpretations of their behavior, particularly if controversial (Pfeffer & Salancik, 1978) and issues management can include impression management tactics (Schlenker, 1980). This positive interpretation by organizational spokespersons of organizational structures and actions relates back to seeking stakeholder endorsement and support (Elsbach & Sutton, 1992).

The public constructs a firm's reputation and subsequent legitimacy from available information about the firms behavior. The degree of corporate environmental and social responsibility is judged from these same sources which include the media, other monitors such as activities, and information from the firms themselves. In its externally oriented form, issues management can offer critical information to the firm. Social and political involvement may "tie in directly to a firm's continued ability to operate" (Pfeffer & Salancik, 1978: 239), and may even represent a means of deflecting challenges from strong stakeholders. Concern with social and political issues, and the development of issues management departments is tied in with manager's assumptions that "social responsiveness generates goodwill from employees, consumers, and other publics that enhance the long-run profitability and viability of firms" (Fombrun & Shanley, 1990). The true measure of the importance of issues management is how much money and staff top managers are willing to allocate to it. This is in keeping with suggestions that how decision makers interpret external events account for differences in responses (Meyer, 1982).

1.6 STAKEHOLDER THEORY

Stakeholder theory has been an organizational framework for discussing the objectives of the firm since the early 1960s. A stakeholder is any identifiable group or individual who can affect or is affected by organization performance in terms of its products, policies, and work processes (Freeman, 1984). There are five major stakeholders that are recognized by most firms, across industry lines, and in spite of size or location: owners (stockholders), employees, customers, local communities, and the society-at-large (Carroll, 1991). In a narrow sense, primary stakeholders are those identifiable groups or individuals on which an organization depends for its survival. Public interest groups, protest groups, local communities, many government agencies, trade associations, competitors, unions, banks, insurance companies, and the press can also be organizational stakeholders. Stakeholders can be adversarial or non-adversarial in nature (Roberts, 1992). Stakeholder theory offers a framework for organizations to balance the demands and needs of these various stakeholders.

Managerial statements about corporate social responsibility and the importance of these responsibilities are easily made, but agreement within management ranks as to what these responsibilities actually mean and what the corporation should actually do to meet these responsibilities is more difficult and complex (Carroll, 1979). All stakeholders have a unique perspective as to what acceptable corporate behavior should be, and these perspectives may be in conflict with each other. Perception of "the common good" from within the corporation is continuously in flux, paralleling the complexity of a cultural and socio-political environment which is also in flux (Mahon & McGowan, 1991). Not all stakeholders are seen as equally relevant by all corporations. Even corporations within the same industry and in the same market niche may not necessarily view the same stakeholders as significant, or with the same degree of concern. Stakeholders may have the power to demand changes in corporate behavior. This corporate change in behavior can be voluntary although perhaps strongly influenced by fear of reprisal for unacceptable behavior, or forced through government regulation and the forces of law (Jones, 1980). Stakeholder theory offers a philosophy and core method for corporations to determine acceptable behavior, and allows a broadening of scope beyond purely economic criteria.

Corporate behaviors are constrained by corporate specific external and internal context factors. External factors may be financial or insurance needs, or demands for certain practices by local regulatory bodies. Internal forces may include inertial forces, leadership, structures, cultures, systems, or employee demands. Perhaps the most pervasive driver of business practice is the traditional corporate concern with the rights and expectations of stockholders (RN-5). Once considered to be the only purpose of business organizations, profits are now often considered indicators of how well organizations are serving the needs of their various stakeholders. These multiple stakeholders with multiple understandings and multiple expectations demand that managers attend to many levels of expectation at one time (Morgan, 1988). Sustainable long-term management involves the simultaneous understanding and management of multiple interests. Even firms in the same industry and with very similar stakeholders may balance and interpret their responsibilities to these stakeholders in very different ways.

Roberts (1992) claims that a major objective of any firm is to attain the ability to balance conflicting demands from the various stakeholders of the firm. This balance is essential in assisting organizations to cope with the constantly shifting target of corporate social responsibility as defined by societal expectations. This can be seen as expanding the corporate boundary spanning search, as the boundaries themselves become more amorphous, more susceptible to argument, and thus more confusing to deal with. The corporation is required to search out the unifying themes that allow fundamental conflicts between stakeholders to be resolved (Morgan, 1988). Organizations are selective with regard to the stakeholders they take into consideration as well as the actions they undertake to achieve an optimal relationship with them (Ullmann, 1985). Serving the varied and often conflicting needs of these multiple stakeholders requires the organization to develop multiple goals to be formulated in social and political as well as economic terms.

Freeman (1984) discussed the role of legislative bodies as corporate stakeholders, and Watts and Zimmerman (1978) developed a political costs hypothesis to argue that corporations employ social responsibility activities to reduce the risk of governmental intrusions, such as regulation, that may adversely affect firm value. The political costs hypothesis and the stakeholder concept both recognize the ability of government to have an impact on corporate strategy and performance. Government can be viewed as a major corporate stakeholder whose interests must be addressed by management (Roberts, 1992).

The stakeholder concept has brought the abstract idea of society closer to home for corporations (Wood, 1991). The stakeholder concept personalizes social or societal responsibilities by putting "names and faces" to the specific groups or persons a business should consider in its social orientation. Management's challenge is to decide which stakeholders merit and receive consideration in the decision making process. Two vital criteria include the stakeholder's legitimacy and their power. From the social responsibility perspective stakeholder legitimacy may be most important as genuine and justified concern must be dealt with since corporate social responsibility is a socially constructed perception. From a management efficiency perspective, stakeholder power might be considered more important because materials or sales maybe withheld from the corporation if bad practice is perceived. (Carroll, 1991).

The stakeholder theory of corporate social responsibility is sometimes referred to as 'constituency theory' (Klonski, 1991: 13). The idea is the same. A constituency is any group that has a relationship to the corporation based on some common concern. What might distinguish a corporate constituent from a stakeholder is that a constituent does not have to be a person or a human collective (Klonski, 1991). The communities' environment is a constituent of the corporation using Klonski's definition, as is the Earth itself.

Social responsibility activities are useful in developing and maintaining satisfactory relationships with stockholders and other stakeholders. Developing a corporate reputation as a socially responsible firm, through performing and disclosing social responsibility activities, can be part of a strategic plan for managing stakeholder relationships.

1.7 RESEARCH QUESTION

An initial definition of the research question is important because without a research focus it is easy to become over-whelmed by the volume of data (Eisenhardt, 1989). This research focuses on corporate interpretation and balancing of pressures from a variety of stakeholders, some of whom expect corporate behavior to be beneficial to the natural environment. Corporate environmental behavior is a subset of corporate social responsibility. This research does not deal with other corporate social responsibility concerns such as employee health and safety issues, although some overlap is inevitable. These connections are not sought out except where they inform this work.

This research identifies the stakeholders that the corporation considers important. The research identifies the pressures regarding environmental action that the corporation perceives as significant and important from these stakeholders. It describes and analyzes subsequent corporate response to these complex and sometimes competing demands.

The broad perimeters of the research question were set prior to review of any literature. The broad research question dealt with corporate response to environmental and ecological need, but a more specific focus was found in the literature. From the corporate social responsibility literature the business and society interface is recognized, and it is recognized that societal expectations on business are more than strictly economic. Environmental behavior can be seen as a subset of corporate social responsibility, and environmental behavior in part determines the degree of legitimacy given to corporate behavior by interested stakeholders. The stakeholder theory literature identifies the various stakeholders of an organization, and shows that the organization does not have to be concerned about these stakeholders for their concerns to be valid. Stakeholder theory also shows that a management task is to balance the competing demands for specific organizational behavior. Corporations must balance these economic and social concerns from a variety of stakeholders, and these demands may even be contradictory. The management literature that touches on the management of social and environmental issues gives some clues about how these decisions are made, with a general awareness that the issue is complex, idiosyncratic, and dynamic.

This research seeks understanding of how chemical firms interpret and balance the often competing demands for certain behaviors regarding the natural environment.

CHAPTER TWO: RESEARCH METHODOLOGY

2.1. RESEARCH APPROACH

This research examines how six chemical firms in a specific geographic area interpret and balance pressures exerted upon them regarding their behavior toward the natural environment. These pressures include both external and internal factors, and are not universally pro-environmentally oriented. Data was collected through interviews with corporate executives, operators in each firm, and other interviews with stakeholders such as bankers, regulators and activists involved with the question of environmental behavior. Data was also collected through document searches, and media archival searches. Using principles of analysis from grounded-theory (Strauss & Corbin 1990), this data was systematically coded into categories, and as these categories emerged and became refined the research task was to consider and explain how the categories related to one another, and what the theoretical implications might be. This chosen methodology is holistic, inductive, and naturalistic.

2.2. CHOICE OF METHODS

I understand the research process as a blending together of empirical evidence with abstract concepts to create theory. Instead of testing propositions deductively arrived at prior to field research, this research illustrates through evidence that plausible theory emerges through inductive interpretation (Neuman, 1991). The theoretical power of this methodology is strong and convincing. This is not to suggest that qualitative inductive methodologies are suitable for all research questions. Qualitative research is an approach to discovery and understanding rather than a particular set of techniques. The appropriateness of any research methodology is contingent on the nature of the phenomenon to be studied, and so qualitative methods combined with grounded theory-like analysis techniques are the most appropriate for this particular research project.

Research methods cannot be assumed a priori to be neutral or atheoretical tools. Researchers control the process of observation and data collection by means of both theory and method. Theories determine the kinds of information that are required by defining the phenomena of interest. Methods determine how the necessary information will be obtained by defining appropriate data collecting procedures (Brewer & Hunter, 1989). Persons, sites, and documents provide the means to obtain these data (Strauss & Corbin, 1990). Methodological styles "reflect not just differences in technique, but also different views of the epistemology of science and its ultimate goals and contributions to human thought and endeavor" (Brewer & Hunter, 1989: 26). In selecting a methodology for this research, consideration was given to the nature of the research question, the nature of the theory and constructs involved, and the skills and interest of the researcher in doing certain types of research (RN-6).

The study involves describing and explaining a process - that of how chemical firms interpret the pressures upon them for certain behaviors, and then how balancing is achieved by firm management in their attempt to meet the needs of the firms' various stakeholders. For example, pro-active environmental action may not be prescribed by law or directly by short-term economic considerations, yet some firms undertake these actions, while others do not. The process of understanding the influence on corporate behavior necessitates an interactive model of information gathering because there is a need for flexibility on the part of the researcher to explore issues and themes that emerge from the research process. Data found leads to different questions as the researcher searches for greater depth of understanding. Qualitative methods can "give the intricate details of phenomena that are difficult to convey with quantitative methods" (Strauss & Corbin, 1990: 19). That the data collection process is not constrained by predetermined categories of analysis contributes to the depth and detail of data in this project, and allows for the discovery of previously underdetermined factors (Patton, 1987).

Field research and case studies of particular populations and settings are "extremely useful in defining the social process by which problems emerge and for suggesting strategic points of programmatic intervention to deal with particular problems" (Brewer & Hunter, 1989: 187). One benefit of fieldwork is that data are often so ubiquitous that one need never worry about having enough data, although having the right data to address a given problem may involve a costly search. The data collected usually requires neither special efforts on the part of subjects nor dislocation from their natural social environments (RN-7).

This research tries to limit extraneous factors by focusing on six firms within one industry and within the same geographic area. This allows a focus on how they interpret and balance the pressures that are more or less common to all of them.

Interviews, observations, document and archival searches, and media searches, are all used in a systematic way. Each of these methods have weaknesses, but fortunately the flaws of each are not identical. This "diversity of imperfection" allows the combination of methods not only to gain their individual strengths, but also compensates for their particular faults and limitations, that "each new set of data increases our confidence that the research results reflect reality rather than methodological error" (Brewer & Hunter, 1989: 17).

Interpretive schemes will likely vary among organizational executives in each firm, and their actions may not be consistent with the values they espouse. Further, executive beliefs and understandings may not be communicated to operators, and espoused values expressed by executives may not be shared or accepted by workers and others. Internal inconsistencies are sometimes uncovered by conducting interviews with employees with different functions and at different levels in the organization. The discovery of these inconsistencies is critical to our understanding of what behavior is really occurring, as separate from what respondents think is occurring, or what respondents want the researcher to think is occurring. Stakeholders outside of the corporation also bring different perspectives to corporate behavior. What is perceived as costly and sincere environmental behavior by a firm executive for example may be seen as only a public relations ploy or window dressing by an environmental activist. This viewing of corporate behavior through many eyes allows broader researcher understanding, and allows greater depth to interview questioning in subsequent interviews with corporate personnel.

2.3. CASE METHOD

Intensive methodology such as the case study approach is required when causal explanations are sought. The distinctive need for case studies arises out of the desire to understand complex social phenomena. The case can be seen as a complex entity operating within a context which include the physical, economic and ethical (Stake, 1994). Consistent with earlier observation of the organization being an open and dynamic system, all cases are located within some wider context which in turn imposes constraints on the actions of the protagonists (Mitchell, 1983). The case study allows an investigation to retain the holistic and meaningful characteristics of real-life events such as managerial change processes (Yin, 1984), and the investigation of managerial interpretation and balancing of stakeholder demands is also enhanced in the same way by the case study approach.

Yin (1984: 23) offers the following concise definition of case study:

> "A case study is an empirical inquiry that:
> - investigates a contemporary phenomenon within its real-life context; when
> - the boundaries between phenomenon and context are not clearly evident; and in which
> - multiple sources of evidence are used."

This research project fulfills this definition of a case study in four ways: (1) organizational behavior regarding environmental action within the real life context of six chemical corporations is examined; (2) this behavior results from interaction between organizational members and others, and the interpretation by organizational members of perceived pressures from the social and economic environment; (3) this behavior is a process which continues over time, often with no clear relational or time boundaries as social and political and economic pressures interactively shift and change; and (4) multiple sources of evidence in the form of interviews, archival materials and documents, media reports, and personal observations, were used for data gathering.

The use of open-ended and discovery oriented case studies allows the gathering of specific data from the six sample sites, but also gathers data that allows an understanding of the chemical industry and the social, political, and economic expectations affecting the industry. This myriad of expectation likely affects the decisions made (or not made) about corporate environmental behavior and other social issues. Further, data collection for this research includes questions of the "how" and "why" variety (Yin, 1984: 20) which require an interpretive approach. This approach enables a tracing of social and political perspectives, and so relationships and activities amongst individuals, organizations and interest groups, although complex processes, can be described (Patton, 1987).

Interviewing combined with the utilization of multiple data sources, which are both part of case study methodology, provides the required quality of data to establish the validity of complex interpretive schemes. Fine-grained methodologies, such as case studies, capture details of context, and aid in developing an understanding of forces underlying phenomenon. Case study provides insight into contextual factors which may not have been previously considered by the researcher.

This research project can be viewed as a collective case study (Stake, 1994). The particular firms are examined to first allow understanding of their behavior and the reasons for that behavior, and second to provide insight into the issue of responsible environmental behavior, to develop theory. The examination of an individual respondent or any given corporation is of interest because it plays a supportive role, facilitating the understanding of something else. The firms included in this research were chosen because understanding their interpretations and balancing of pressures regarding the natural environment will lead to a better understanding about a still larger collection of cases, that being the chemical industry of Alberta, or perhaps even North America. The primary point about the basis of making inferences from case material is that the extrapolation is based on the validity of the analysis rather than the representativeness of the events (Mitchell, 1983). Further, the case study method provides an open-ended approach to selecting variables that are relevant to answering the research questions under consideration, but which may not be apparent from initial literature and document reviews.

The chosen methodological approach of using six cases in one industry is not without shortcomings. Moving from a single case study to six cases reduces the intensity with which each case can practically be examined, yielding sparser data than are obtainable from a study consisting of a single case, given the same time frame (Pettigrew 1987). On the other hand, the endeavor to obtain a certain depth and richness from each firm precludes the possibility of a sample of hundreds. Given the problems of utilizing survey data for questions of this complexity, this compromise methodological strategy of using six cases is the optimal choice.

Ten potential sites were identified at the start of this research project. As the project evolved, one site was purchased by another firm already in the sample, two sites were available but information from firm leadership was reluctant and not helpful, and one site refused to participate. This firm, in declining to participate, explained that they were in the midst of a major personnel downsizing, and simply did not want to risk further upset. The argument can be made that the reluctant and refusing firms would provide information and perhaps contrast to the six firms examined. This is possible but unlikely. All firms belong to several Industrial Associations in the area, so environmental behavior by any firm in a general sense is likely to be known by others. Executives interviewed in the sample firms did not raise problems or concerns with the non-participating firms. Similarly, operators, many in the same Union, did not raise issues or incidents regarding these other firms, or make claims that their own firm was superior to these other firms. Exterior stakeholder interviewees did not single out any of these other firms as especially good or bad performers. I believe the six firms in the sample are typical of chemical firms in the area, that is, not exceptional or somehow different.

Although case studies may often begin with a slight conceptual framework, the narrative must nevertheless be organized around specific propositions, questions or activities, with flexibility provided by modifying these topics as analysis progresses (Yin: 1981). Obviously, the determination of what is meaningful requires some sense of what the case study is about but does not imply a rigid conceptual framework. The central questions of case study research must be identified beforehand (Yin, 1981), and are seen as a current map of the territory to be investigated although this map is likely to change as the study evolves (Miles & Huberman, 1984). If, during the course of a case study, dramatically different conceptualizations arise, these should then lead to central questions for a new phase of the study, and new evidence may have to be collected (Yin, 1981).

The questions of this research involve the 'how' of pressure interpretation by management, and the balancing of the competing desires of the various stakeholders supporting these pressures. This terrain of researcher interest is informed by corporate social responsibility, stakeholder theory, and an awareness of the interconnectedness of business and society and that institutional and economic systems are only subsystems of a broader ecological system. The focus of this work is not what chemical firms should do, but focused more on what they do actually do, and why.

2.4. (NOT) GROUNDED THEORY

Grounded theory uses systematic data collection and analysis of data to discover and provisionally verify a theory that is inductively derived from the specific study of the sample being researched. Data collection, analysis, and theory are undertaken together and are reciprocal with each other. To be clear, in grounded theory one begins with an area of study and what is relevant to that area is allowed to emerge, one does not begin with a theory and then prove it (Strauss & Corbin, 1990) (RN-8).

This research uses grounded theory coding and categorization methodology, but cannot claim to be grounded theory. Principles of coding practice are taken directly from grounded theory (Strauss & Corbin 1990). Glaser and Strauss (1967) were specific about researcher pre-research or study prior to commencement of data collection - it simply was not to be done in case the data analysis would be "forced" to fit pre-conceived ideas or theory. In this research this "rule" was broken as efforts were made to enhance researcher understanding before interviews commenced (RN-9). In brief, the researcher had preconceived ideas about the research topic, and cannot claim indifference or neutrality regarding the research questions.

Grounded theory is inductive, pragmatic, and highly concrete (Patton, 1987). The grounded theory method shares many similarities with other qualitative modes of research, including case studies, in that the sources of data are the same: interviewing, field observations, as well as documents of all kinds (Strauss & Corbin, 1994). All research is grounded in data in some way (Glaser, 1992). The strength of grounded theory is in the analytical method, and the rigor of the formality of the analysis.

Grounded theory can be thought of as a transactional system, which allows the researcher and others to examine the interactive nature of events. Strauss and Corbin (1990) offer a theory of method, and not just technique or method in the narrow sense. Grounded theory is an action/interaction oriented method of theory building. Action is directed at managing, handling, or responding to a phenomenon as it exists in context or under a specific set of conditions. As action evolves it can be studied as process, movement, or change over time. The action is purposeful and done for some reason. In this research, the chemical firms take certain environmental action because of certain pressures, and the researcher interest is in how and why these pressures are interpreted and balanced in certain ways.

2.5. SAMPLE SELECTION

The complexities and ambiguities of the "real-world" present limitations and restrictions on any sample, and so researchers must search for a balance between the ideal and the feasible, being constantly aware of shortcomings (Morse, 1986). Efforts can certainly be made to control extraneous variation and therefore help to define the limits for generalizing the findings (Eisenhardt, 1989), but the selection of an appropriate population is not an easy one. Organizations are open and dynamic systems, and the "controlling" of any external influence raises questions about the validity of the findings.

The selection of six firms from one industry in one geographic vicinity was designed in part to reduce variation between firms as much as possible. Because the firms are in the same industry and share more or less the same legal, social, political and economic pressures, this creates a common basis for comparison and so allows an examination as to why behavior regarding the natural environment is not the same for all firms.

Three criteria for the choice of research sites are:

1: The chosen corporations must be geographically available to the researcher. This reflects concerns about cost of travel, time constraints, availability for follow-up interviewing, and accessibility of archival materials. The Edmonton / Ft. Saskatchewan area has ten chemical plants of various sizes and product ranges, second only to Sarnia in Canada, and so this geographic criteria can be restrictive without damaging the credibility of the sample.

2: The chosen research sites should have a history that can be documented regarding environmental issues, and this may include local newspaper, provincial newsmagazine, and national magazine articles. Without adequate documentation combined with the memories of respondents, I cannot study the balancing of stakeholder demands and firm specific interpretation of pressures influencing environmental action.

3: The research sites chosen must allow the researcher to have access to interview organizational members. The researcher, to some extent, had to win the trust of senior management, a relationship that was nurtured and developed throughout the actual research (Pettigrew, 1989; Yin, 1984). Top management had to allow their firm to be researched over a three or four month period, with a commitment to allowing the researcher access to corporate respondents, archives, and other document data.

Initially, a broader search throughout the Province of Alberta was thought to be the best way to arrive at a sample set, but commonality of legal and community constraints and pressures became the dominant concern. Firms facing common pressures yet still reacting in different ways to these pressures offer greater opportunity for understanding the mediation process. The six chemical firms in the Fort Saskatchewan area fulfill the criteria laid out above. Local firms to international firms are represented, with a wide range of firm size, product, and market being represented.

2.6. RESPONDENT SELECTION

I attempted to insure that all respondents would be "deliberately selected by the researcher according to the theoretical needs and direction of the research" (Morse, 1986: 184). This method is strong simply because the researcher is selecting the informants according to research needs. Because of the sample size and the time and effort required to collect data, it was essential that opportunities be maximized to obtain the most insightful data possible, ideally selecting respondents according to their knowledge base and willingness to share this knowledge. Firm recommendation for respondent choice was an influence on choice, but not damaging to the quality of the final selection.

The relationship between researcher and respondent, as any other relationship, must be viewed as temporal and subject to change, and so must be constantly negotiated and renegotiated. The relationship can be viewed as a bargain, with both sides hoping for some gain. In this instance, the gain for the researcher was access to information and insight that would allow the research questions to be addressed. The gain for the respondents was less clear. Patton (1987) recommends a reciprocity model to gain entry: this model assumes that the researcher can find some reason for participants to cooperate in the research and that some kind of mutual exchange can occur. He suggests that copies of the finished research product can be offered, and I have made this offer when asked about the possibility. I believe there are two main reasons respondents cooperated with this research: learning and growth was possible through the interview exchange itself; and openness and full-accountability to the public is one philosophical cornerstone of the Canadian Chemical Producers Association (RN-10). Once each firm had agreed to be part of the research, denial of access to any firm personnel was not hinted at by any of the firms.

Interviews were undertaken with three major sub-groups, all closely involved with the research sites. First, community members, government regulatory staff, other interested parties, and environmental group leaders were interviewed. Second, corporate executives from each of the six firms were interviewed. Third, operators and other non-executive staff including union representatives from the six firms were interviewed.

2.6.1. OFF-SITE RESPONDENTS

Many individuals, representing themselves or other stakeholder organizations, furthered the understanding of the behavior of these chemical firms. These individuals include: government regulators, environmental activists, environmental consultants, local community leadership, chemical company executives from similar plants in the Edmonton area but not part of the sample, and banking personnel regarding commercial loan guidelines.

The choice of off-site informants was somewhat dependent on referral and access, the referral coming from faculty advisors, chemical corporation members, chemical association staff, and other off-site informants. Several individuals were "found" by the researcher in media reports or at community meetings. (see RN-11) Most of these people were interviewed early in the research process, and informed the researcher about issues, problems, and even specific instances of interest to this work. Part of the initial interview schedule with chemical firm executives was based on knowledge gained from these interviews.

Interviews with community members, environmental activist leaders, government regulatory staff and CCPA representatives were mostly undertaken prior to interviewing site senior management. These interviews were undertaken before the firm interviews to give the researcher some background, to allow some depth of understanding of the pressures on the firms, and also to prepare the researcher to be knowledgeable enough about the sites to be somewhat critical of firm-supplied information. The researcher is a consumer, as is the public, of the firms' public relations message.

2.6.2. EXECUTIVE RESPONDENTS

The CCPA was helpful to me in gaining initial access to the firms. Four of the six firms in this research project are CCPA members. I was aware of the level of management I wished to talk with in each firm, but in some cases did not know the name of the individual filling the position. As the research evolved, I learned the names of firm executives from previous respondents. I believe that this "knowing" of peers and implied reference from others in similar positions was helpful in gaining easy access in most sites. At the commencement of the research the CCPA supplied a referral to several firms.

The senior executives were chosen because of their ability at the local plant level to be involved when the firm was deciding behaviors of the corporation regarding the natural environment. These interviews examined the current environmental behavior of the organization and often covered some historical background (RN-12).

Most logistic questions about the research, who the researcher was, the study's sponsorship, the time commitment required on the part of the respondent and the firm and the confidentiality of responses all occurred in the first communication. Often these first meetings were held in hallways or doorways of offices at the plant as I was "brought over" for an introduction by a previous respondent. Each respondent was expected to grant at least a one-hour interview, and little more of my expectations were discussed. It was rare that other material such as company reports, statements, or documents were not given or volunteered to the researcher by most respondents.

2.6.3. OPERATOR RESPONDENTS

The operator respondents were chosen in all six firms with the assistance of the firm's human resources personnel. In two firms these personnel referred me directly to Union representatives who in turn found willing respondents. At one facility I spent a full shift with five night shift operators, and interviewed all five separately between midnight and eight am in the main control room of the plant. The operator interviews asked for employee perception of their corporation's behavior, their understanding of the drivers for this behavior, the expectation of the firm regarding employee behavior, and their own expectations regarding responsible environmental behavior.

The sites for this research are six chemical companies with plants in the Ft. Saskatchewan area of Alberta. Documents from and about these sites were examined, but the backbone of this research is transcript analysis from interviews with executives and operator-workers of these firms. Government regulatory staff, leaders of special interest groups, and others, were also interviewed and their transcripts analyzed to provide alternative perspectives and a more complete overview of the pressures and influences facing these firms. These interviews offer sufficient "replications" to convince the reader of a general phenomenon (Yin, 1984).

2.7. STAGED DATA COLLECTION

The data collection was carried out in three major stages, with stage two building on the findings from stage one, and stage three enhancing the findings from stages one and two. Stage one interviews with non-corporate individuals provided constructs such as corporate fear of regulation or awareness of public concern to be examined further in stage two. Stage two interviews with corporate executives from each of the six firms gained their perspectives and understandings of how the various pressures exerted on the firm regarding their environmental behavior were interpreted and balanced. Stage three interviews with firm operators and workers from each firm gained their perspectives on firm behavior, specifically whether the operators shared awareness and understanding regarding environmental practice with their employer. The interviews were all semi-structured and open-ended, and although certain concepts were covered with all respondents, an ordered list of specific questions was not used. The interviews were followed by transcript generation, and then transcript analysis using methods largely borrowed from grounded theory. Cross firm analysis and conclusions were possible after categorization of indicators and analysis of the six firms was completed.

Briefly, stage one interviews were with non-sample chemical corporation executives, environmental consultants, environmental activists, community group leaders, government regulators, other government environmental staff, chemical firm association staff, and bankers, to better define the influences driving environmental decision-making in the chemical industry. The interest at this stage was in gaining data about corporation action or inaction, and the interpretation by respondents of the range of conditions that give rise to that action (Strauss & Corbin, 1990).

Stage two involved visits to the sample sites with more specific but still open-ended interaction questions, and with the interview focus being on the executives of the sample chemical firms. Questions were asked about how the pressures for action are perceived and balanced. My expectation was that the acquisition of "new" data would decline over time, and this happened, but useful and insightful data increased because of increasingly focused questions and researcher knowledge(Brewer & Hunter, 1989).

Stage three interviews involved a return to the six firms, and interviewing operators and workers instead of executives and top management. Operator awareness and knowledge was sought as well as their interpretation as to why the firm took the various actions they did. In a general sense, most operators were less articulate and less willing to expand on questions asked. The focus tended to be more on work-task and less on work concept.

2.8. CODING AND CATEGORIZATION OF DATA

In the first stages of the research, the purpose of interviewing was to uncover as many potentially relevant factors and questions as possible along with their properties and dimensions. In stage two, the interviewing was more discriminate, choosing the sites, persons, and documents that would maximize opportunities for verifying the various story lines and relationships between categories. Stage three interviews enhanced understandings gained in stage two. In stage one I felt insecure about which concepts or ideas might be important or significant and felt equally insecure in making judgments. Early in the study, I was not certain what would pertain and what would not (RN - 13). Transcription of interviews is necessary before coding or analysis can be done. All interviews were transcribed because of the fear that if not transcribed then important data might be missed. Further, full transcription of all interviews allowed a continuous return to the data for review after more data collection had been done. Martin and Turner (1986: 150) declare that "little in the grounded theory process is irreversible," that specific or general concepts can be remedied. Selective or partial transcribing would not have allowed this data review, recoding and re-categorization (RN - 14).

Coding represents the operations by which data are broken down, conceptualized, and put back together in new ways. It is the central process by which theories are built from data (Strauss & Corbin, 1990). Coding of qualitative data is often an emergent process especially when there are open-ended and semi-structured questions as there are in this study (Patton 1990). Because of the freedom created through the use of open-ended interview questions, respondents were expected to identify additional relevant items or categories as the interviews progressed. This happened with regularity, and required follow-up phone conversations with previous respondents to request their comments about the new items raised. So, not only were transcripts coded and re-coded, but respondents were questioned multiple times, even though many of these follow-up conversations were very brief.

Coding practices were revised throughout all stages of data collection as different theoretical frameworks were examined. Old materials were re-coded in light of additional knowledge. Glaser (1978) recommends writing the incidents in more than one conceptual category, and many respondent statements were germane to more than one category (RN-15).

Although this coding procedure seems complicated, it is only a reflection of similarly complex reality. Grounded theory analysis tries to capture as much of this 'real-world' complexity as possible while knowing that we are never able to grasp all of it. Strauss and Corbin (1990) stress that the discovery and specification of differences as well as similarities among categories is crucially important to grounded theory development (RN-16). The coding of transcripts was easier than the categorizing of these codes. This research resulted in one hundred codes (later called indicators) which were subsumed into twenty categories, and these categories in turn subsumed under five main pressures. There was much moving and shifting of the categories, as different configurations of interpretation were tried.

The proposed relationships must be repeatedly supported by the data. It must be clear that the relationships identified make sense, and are shown by the material found in the data itself. The final theory is limited to "those categories, their properties and dimensions, and statements of relationships that exist in the actual data collected" (Strauss & Corbin, 1990: 112). Concepts and relationships arrived at through deductive thinking, or in other theoretical work, are held to be provisional until supported by the data, and if not supported must be discarded. These may not be borne out for a number of reasons: inadequate choice of sites or insufficient data collection; lack of access to informants with the needed information; or even purposeful deception. Nonetheless, what is not found in the data becomes a limitation of the study.

2.9. DATA SOURCES UTILIZED

The present study uses transcripts from interviews as the main sources of data, and these transcripts are supplemented with corporate archival records and media reports.

Direct observation assisted understanding, but was not done in a purposeful manner. Although these sources were used iteratively, the analysis of interview transcripts is the backbone of this dissertation.

2.9.1. INTERVIEWS

Interviews serve as the most important source of information in the present study. The purpose of the research project was explained at the start of each interview, which in most cases was simply an expansion of information already given in the initial conversation. These initial conservations were often over the telephone or in brief hallway meetings. Interviews typically lasted over an hour each, and were occasionally followed-up with a second interview but more likely with a phone call clarification. Phone calls were usually made a day or so after the interview to express appreciation for the respondent's time and consideration for the interview already done. Referrals or "the favor of an introduction" were often asked for in these follow-up calls. All interviews with corporate executives were conducted on company premises, either at the facility site or downtown office site. Operator interviews were held either on the job site or at the Union hall. Other interviews were held in houses, offices, at the University, or wherever mutually convenient.

Interviewees were assured the purpose of the tape recorder was to ensure greater accuracy in recording information, and that the information was for research use only. Respondents were assured that the tape-recorder could be turned off at any time at the interviewer's request. Further, interviewees were told that the recordings provided a safeguard for them in that the researcher could not 'create' data, and that copies of the interview tapes would be available to them upon request. Each respondent was assured that their responses from the transcript if quoted in the final work would be referenced by interview number only, and that all names and firm identification would be removed to assure anonymity. Only one respondent requested a copy of his transcript, although several requested a look at the finished dissertation.

Denzin (1978) notes that the interview is a special type of relationship that rests on multiple selves and flows through the process of conversation (RN-17). In my judgment the researcher plays an informed, questioning role and displays sincere interest. The respondent is cast as the expert witness and is asked to share his or her expertise. This expertise is often first offered as a version of company policy with more reflective personal opinion and interpretation following in later stages of the interview. The strength of the interview is also its weakness, as the conversational interaction can create problems because the two interactors enter the encounter with different perspectives (RN-18). A goal of interviewing is to understand the respondent's perspective, it is paramount for the researcher to establish rapport and develop trust. Gaining the trust of respondents is essential, but this must be understood to be a fragile entity which can be destroyed by researcher insensitivity at any time (Fontana & Frey, 1994).

Taping the interview allowed more focus on the content and tone of the exchange itself during the interview rather than on the written recording of it. Permission to tape record an interview was refused only in a single case, and the notes from that interview were eventually shifted to the industry stakeholder file as the firm itself was not included in the six cases analyzed. All interviews were tape recorded and transcribed (RN-19).

The question of how many interviews to do to achieve "saturation" has not been satisfactorily dealt with in the literature. Glaser claims:

> "The first Interviews and field notes should be entirely transcribed for coding and analysis, and subsequent notes also. But after a time the coding and analysis provides guidance through theoretical sampling to delimit further field observations and interviews ... This economy, which prevents the unnecessary cost and build up of data that yields what is already known, should not be availed to until the researcher is certain of his delimiting and selection of data by the emerging theory. Better more than less transcribed data to achieve a theory that fully accounts for the variation in the data" (Glaser, 1992: 19-20).

Eventually the analysis itself tells the researcher that further collection of data is unnecessary, according to Glaser (1992). This conclusion is based on Glaser's conviction that a certain point of awareness can be achieved when the "researcher is certain" of the emerging theory. Glaser (1992) does acknowledge that "better more than less" data is needed to account for variation (RN-20). Researchers are often faced with a classic paradox: to completely understand and represent the whole situation and context, they must fully duplicate the whole situation and context. This is not the purpose of theory building in research. The interest is in explaining the context and situation accurately, but in a simplified and understandable form, a form that can be generalized in some way to be useful in our understanding of other firms and organizations, and also to be useful for practitioners in the field. An average of seven interviews per firm were done with typically three or four of these being upper management or senior executives, and three or four being plant workers or lower-level management. A total of fifty-three interviews were done, and I believe this is a sufficient number to reach understanding, and make sense of behavior in these chemical firms.

Sometimes called the semi-structured or "focused" interview, or the "non scheduled standardized interview" (Denzin, 1978: 115), certain types of information were desired from all respondents but the particular phrasing of questions and their order was redefined to fit the characteristics of each respondent (RN-21). I consider it important that questions flow in a natural way so that the interviews are perceived as a shared conversation instead of as a formal information seeking mechanism. Questions then were not necessarily asked in any set order, and often were "tagged-on" to previous questions, or even as "yes-buts" as in "'well, yes, but I've also heard ...". Respondents were asked to discuss the "facts" of a matter as well as their insights and opinions regarding the events (RN-22).

A transcript copy given to the respondent may provide greater information from the respondent in terms of recollections from the respondent as he or she reviews the information on the transcript. Expansion of previous points or "corrections" may be given. The problem is that transcripts are often very revealing, not only of what we say, but of the way we speak and express ourselves (RN-23). Patton (1987: 102) claims that the giving of feedback can be "a major part of the verification process in fieldwork" and providing the participants copies of their transcript may enhance the descriptions and analysis, and then to use these reactions as part of the data. Schatzman and Strauss (1973) agree and contend that such a review of transcripts is a matter of professional courtesy, and they identify this procedure as a way of corroborating the essential facts and evidence presented in the case report. My belief is that any issues raised by respondents and somehow "missed" by me in terms of follow-up during the interview itself are better explored through follow-up phone calls or with hallway conversations on subsequent visits. This was done often. The informants and participants may still disagree with the researcher's conclusions or interpretations, but they should not disagree over the content of the spoken or transcribed interviews (RN-24).

My conclusion is that the risk of embarrassment because of conversational style in some cases offsets whatever benefit might accrue from respondent review of transcripts. This is obviously a judgment call. I tend to agree with Schatzman and Strauss (1973) that a formal review by respondents would be beneficial, however, the corroboration of essential facts and evidence can be done through other interviews or data sources as well as by specific respondents examining their own transcripts. More than that, my feeling is that the interview, when conducted in a style much like a mutually informing discussion, or as an exchange of information, creates a relationship that is somehow damaged when the black-and-white of a transcript arrives for review. The context of the research relationship has been changed, that the end result of the interview is a taking of words and ideas by the researcher from the respondent, instead of the seemingly more equitable and fair exchange of ideas in the interview itself.

Every respondent was treated as a key informant in that all respondents were asked for corroboratory evidence or assistance in achieving the next interview (Yin, 1984). Even when I knew the name or position of the person I next wanted to interview, I always asked the previous interview in the firm for help in achieving access. This had several advantages: 1) I was no longer considered a total stranger by firm members, and I appeared to be on friendly terms with a peer; 2) the respondent could be asked by the next respondent for a reference, or a "how was it", 3) interviews were often scheduled on the spot, and occasionally within the hour. The personal contact was the most important factor. Although interviews are only verbal reports, and so are subject to problems of bias, poor recall, and poor or inaccurate articulation, "interviews are an essential source of case study evidence, because research questions about human affairs should be reported and interpreted through the eyes of specific interviewees who can provide important insights into a situation" (Yin, 1984: 84).

2.9.2. DIRECT OBSERVATIONS

The purpose of direct observations of external physical signs, physical locations, or observations of language is to get a sense of what the organization is all about, and to develop rapport with important respondents (Denzin, 1978). By directly observing, a researcher is better able to understand the context within which decisions occur (Patton. 1987).

Every field visit to the site was an opportunity for direct observation. Condition of buildings, security arrangements, friendliness of staff to each other and the researcher, or the location or furnishings of the respondents office all offered information (Yin, 1984). This observational data is shallow however. Glaser (1992: 49) notes that "observations do not in and of themselves have the meaning or the perspective in them of the participant." Observations were considered a minor assistance to this work.

The most useful direct observation occurred when I attended a two-day meeting of the Canadian Chemical Producers Association, and observed and visited informally with chemical firm executives while there. Perspectives of global practice were gained at this meeting because Mexican and American executives were present. I appeared as a professional in an informal setting, and met some future respondents in this more social setting.

2.9.3. DOCUMENTS AND ARCHIVAL RECORDS

Data and archival records relating to environmental behavior were supplied by the firms themselves, or found in the University Business library. This type of data collection is considered to be unobtrusive, meaning "the researcher is removed from the set of interactions or events being studied" (Denzin, 1978: 256). These artifacts include administrative documents such as proposals, formal studies or evaluations, and organizational charts and budgets regarding environmental practice over a period of time. Library materials included corporate annual reports and specific Annual Report inserts which detailed environmental practice (RN-25). Documents are not necessarily accurate or unbiased and so must be carefully used and "not accepted as literal recordings of events that have taken place" (Yin, 1984: 80). One important use of documents is to corroborate and augment evidence from other sources. Archival material is also available from non-firm agencies such as environmental groups, political and judicial reports, and government documents.

Documents were collected throughout this research project. Mission statements and interpretations of the Responsible Care program (RN-26) were offered by four of the six firms. One firm, not a CCPA member, offered their own set of "responsible" guidelines which mirrored CCPA documents. Archival material was useful in giving the context of current behavior, particularly in terms of firm history and culture, and informed the interviews, and as a means of finding "facts" regarding costs or dates for various programs.

2.9.4. NEWSPAPER AND JOURNAL ARTICLES

Newspaper and magazine articles were found by the researcher from local, national, or international sources. These articles provided the basis for specific questions asked corporate executives regarding environmental action. Some articles documented expressed community concern and names of individuals from community action groups were occasionally found through these sources (RN-27). Whenever possible, printed data on the organization in the form of newspaper or magazine articles, company reports or promotional materials issued by the company, was studied before interviews were undertaken. The interviews are the primary data source for this research, with archival material and media being used to confirm material from interviews and to introduce new material for the interviews. For each firm as a minimum I have annual reports for three years, internal documents, hand-outs usually given to the public when on tour of the facilities, and in one case a massive file of public-relations media releases regarding the start-up of a facility expansion. All of these materials are secondary.

2.10. SINGLE INTERVIEWER CONCERNS

Miles and Huberman (1984) and Patton (1990) both suggest there should be multiple interviewers to control for individual bias in interview responses and interpretation. With only one interviewer, the possibility exists that responses obtained could be an artifact created by the interaction between interviewer and interviewee. There is also the question regarding control for unconscious cueing of "desirable" responses when the interviewer is not blind to the propositions or hypotheses being tested (RN-28).

The use of multiple interviewers was not a possibility in this research study, therefore the existence of single interviewer bias cannot be entirely discounted. Concern about this potential bias was rigorously monitored by the researcher. Bias can be operational through the exclusion of data as well as the inclusion or emphasis on material prejudiced by the researchers world view. I believe all researchers do this to some extent, consciously or not. Strauss and Corbin (1990: 76) claim that "it is necessary to challenge our assumptions, delve beneath our experience, and look beyond the literature if we are to uncover phenomena and arrive at new theoretical formulations." Personal rigor and intellectual honesty is critical.

Another problem is the realization that the time available both to the researcher and to the firms in question was considerably too short. The argument can be made that months of full-time work within a firm is required to create a reasonably open relationship with staff, to establish trust, and therefore to gain sufficient honesty from respondents and enough understanding of context on the researcher's part to gain insight into a firm's situation. This contrasts vividly with most research where a researcher may spend a few scheduled hours with varying numbers of people in a firm. This is a general concern with much research, and is a valid concern with this research project as well. I spent about ten hours at each site, although likely ten times that time in analyzing and working with the resultant data. This time availability problem is a limitation of this research project.

It is desirable that academic researchers account for their personal values when undertaking research. These values color everything observed and understood. Some theorists (Schatzman & Strauss, 1973: 57) argue that having expectations, conjectures, and hypothesis prior to entering the field provide the researcher with "thought and directives on what to look for and what to ask about." Glaser (1992) does not agree, and argues that grounded theory research demands a clean slate, and that anything else ends up by "forcing" the data. This is my main problem with grounded theory, and the reason why this research is not grounded in Glaser's sense of the term. I believe that we all enter the research field with personal knowledge and preconceptions, and that to assume otherwise is misleading to oneself, taints our data collection and analysis, and misleads the research audience (RN-29).

I believe that researchers add to their pre-understanding through interviews and other sources. The purpose of this understanding is to gain certain insights, while at the same time because of professional training and experience utilize methods that allow the analysis and interpretation of the experiences of others. This is an iterative process, not so much a circle of knowledge where more learning equals more knowledge and so a larger circle, but more like a spiral of ever increasing knowledge at different levels than were available before. Each stage of research adds knowledge to previous levels of understanding, and provides pre-understanding to the successive stages of research.

The concept of pre-understanding refers to researcher insights or beliefs about specific problems or social environment before research is begun. The type of data collected and the analysis of information involves personal commitment as an essential element, yet researchers must attempt to remain open, to demonstrate theoretical sensitivity (Glaser, 1992), and be able to change perspective as the "reality" of the data requires. That knowledge or pre-understanding can be extremely selective is problematic, and can determine the selection of respondents, research sites, and type of questions asked of respondents. In trying to force data findings into pre-understood niches and theory, "reality" can become distorted rather than explained. Intellectual rigor is the safeguard.

2.11. FINAL COMMENTS REGARDING METHODOLOGY

Several aspects of this methodology are worthy of a final comment.

1. Validity.

The validity or reliability of qualitative data "depend to a great extent on the methodological skill, sensitivity, and training of the researcher" (Patton, 1978: 8). Validity, simply, is the extent to which the research yields the "correct" answer regarding a specific sample (Kirk & Miller, 1986: 19). This research makes no claims about the findings being generalizable to a larger population. This research attempts to describe and understand the interpretation and balancing of various pressures regarding firm environmental behavior, for a sample of six chemical firms in the Edmonton area.

Would the same findings hold true for the petroleum Industry, or for the pulp and paper industry, given that both are as highly regulated as the chemical industry, and have similar socio-economic pressures? Generalizations to other sites and situations are not made, because of the context of specific situations, although other researchers may find these findings instructive. The understanding and theoretical formulations offered to explain specific drivers or factors that lead to certain types of consciousness in chemical firms could be applicable to pulp and paper firms or others, but that is for others to conclude.

Great care was taken throughout the building of the case studies in Chapter Three to document every statement about each firm with a specific quote or quotes from the transcripts. Over thirteen hundred specific quotations are offered in the six cases to document firm employee response and belief. This referencing throughout the analysis allows the reader to independently judge the validity and reliability of the information. It is crucial for validity and, consequently, for reliability, to picture the empirical social world as it actually exists to those under investigation, rather than as the researcher imagines this social world to be (Patton, 1987). Clarifying tentative findings with subsequent respondents assisted in creating validity, and convinced the researcher of the correctness of the findings.

2. Reliability.

The goal of reliability in research is to minimize the errors and biases in a study. That is, if another researcher "'followed exactly the same procedures and conducted the research all over again, the same findings and conclusions would be arrived at" (Yin, 1984: 40). Time frame differences must be accounted for, and as decision frames and stakeholder analysis and interpretation are all socially constructed, any variance in time would likely cause differences in result. The coding of the raw data was done so that another researcher can understand the reasoning and method and arrive at similar themes or categories (RN-30). The objective here was to make as many steps as fully operational as possible (Yin, 1984), and to be aware that replication if desired should be possible. Patton (1980) suggests that an audit trail should be possible for all research. I am confident that if this research was replicated that very similar results regarding coding and categorization would be reached. Conclusions and implications are dependent to some extent on researcher world-view and understanding, as discussed previously.

3. Objectivity:

Objectivity is a desired component of all research and this problem belongs to the larger set of skills required to perform any type of research. Can a researcher who is not neutral about a specific research topic collect and analyze data in a neutral and impartial manner? The conscious answer is "yes", but that is only the conscious answer. The matter is at least open for appraisal, unlike most research where the question is not raised to begin with. To the best of my ability and knowledge I remained honest and neutral about all data collected, and did not purposefully distort or hedge my analysis in any way. Qualitative researchers are required to remain objective while attempting to gain subjective perceptions through the interview process. I was very sensitive about the dangers of bias, and used my advisors and other individuals, and even a few industry stakeholders as sounding boards in an attempt to remain objective. The problem of objectivity belongs to the larger set of skills required to perform this type of research. Awareness, and an intellectual desire for "honest" work, is seen as a safeguard against excess subjectivity or bias.

4. Dependence on Interviews.

It was expected that interviewees would have reason to hide some information from the researcher, perhaps to protect themselves or others, or the organization. Information would be "hidden" simply by not volunteering the information, particularly if the researcher appeared unaware of these further trails of evidence. Understanding the "why" for changes in managerial rationality is crucial for understanding the dynamics of decision making, yet are difficult to study retrospectively (Van de Ven, 1987). Many respondents appeared unsure themselves as to why certain behaviors were undertaken, or where certain beliefs or values evolved from (RN-31). It is also feasible that the 'best' respondents were not found (RN-32). The caution is to be aware that individuals can only tell what they believe to be true, and so may, in perfect honesty, inform the researcher incorrectly. The interest in this research is with the perceptions and understandings of the respondents, not in whether these perceptions and understandings are "true" in any sense. One problem is that these "rememberings" are selective, possibly self-serving or firm-serving, and may be over-ridden with hindsight bias which might make relatively ad hoc and random decision making seem very purposeful and rational. Previous actions must be seen in light of current cultural rationalities.

5. Type of organization chosen.

The six chemical firms chosen share similar external pressures. Behavior is only one piece of the puzzle. Even though firms may exhibit more or less the same behavior, the underlying assumptions (Schein 1985) that inform the values and beliefs that in turn influence these behaviors may be completely different. In a related matter, the belief systems regarding the natural environment may be subsumed to controls or belief systems espoused by the CCPA, with firm values regarding the natural environment taken more as given from the CCPA than individually reasoned.

The chemical firms are more suitable than firms in other industries because they do have a strong industry organization, consider themselves to be on the leading- edge of pro-active environmental behavior as compared to other industries such as pulp and paper or oil and gas, share a community in common, and identical regulatory controls. Pulp and paper firms for example are spread out over several parts of Northern Alberta and so do not share common community, and are 'grandfathered' (RN-33) regarding environmental regulation. The chemical industry is not given this flexibility, so specific levels of performance are expected from all facilities and firms, and performance over this base level can be noted and documented.

6. Grounded Theory.

The present research design, with its emphasis on interview data, offers an opportunity to develop grounded theory (Glaser & Strauss, 1967). Although all research is grounded to some extent, and this project is more than less grounded, I do not follow all the directives of Glaser and Strauss (1967) and so do not claim to be doing "grounded theory". I am not "forcing" my data to fit pre-chosen theory, but expect that data to evolve and speak for itself. One problem is that "ideal" grounded theory as espoused by Glaser and Strauss (1967) demands that the researcher be a naive outsider, and I am not. I admit to having preconceptions and some initial knowledge about the chemical industry, and this pre-knowledge naturally becomes stronger and more definite as the research process unfolds. I carry certain theoretical and assumed knowledge with me, as do all researchers, and this pre-knowledge must be acknowledged up front. Initial assumptions must be checked and confirmed with the data. As well, literature reviews in several fields were under taken prior to data collection instead of after data collection and analysis was well underway as recommended by Glaser (1992). In later work Strauss and Corbin (1994) raise some of these same concerns.

7. Closure.

Closure in qualitative research is often ambiguous and confusing. The suggestions for closure make sense for those undertaking the research, but may appear loose and "unscientific" to evaluators of the work, particularly those unfamiliar with qualitative methods. For example, "sampling and data collection closes when the theory is complete, does not have gaps, makes sense, and has been confirmed" (Morse, 1986: 184). Glaser and Strauss (1967) use the term saturation, which means that the researcher has gained a full understanding of the situation or the setting, that further research is not yielding any new information, and negative cases cannot be found that can not be subsumed under the emerged theory. Lincoln and Guba (1985) suggest the researcher stop collecting and processing data when sources are exhausted, categories are saturated, and regularities have emerged. In this research, new data information was not forthcoming from the existing respondents or the sites. Differences in the data were accounted for and respondent disparities canceled each other out. Remembering that the respondents do not represent the firm but inform on the firm, the time for closure in this research, as suggested by Strauss and Corbin (1990), became obvious.

CHAPTER THREE - CASE PRESENTATION

3.1 INTRODUCTION TO THE SIX CASES

The goal of qualitative research is to organize a large quantity of specific details into a "coherent picture, model, or set of interconnected concepts" (Neuman 1991: 414), and this chapter will organize the data collected and create this coherent picture. To explain a phenomenon is to stipulate a set of causal links about it, even though these links may be complex and difficult to measure in any precise manner (Yin 1984: 107). Yin is correct: causal links can be identified in this research, but they are complex, interrelated with other links, and are difficult to measure, much less precisely. Theory, in demanding causal links, refers to a set of propositions that are interrelated in an orderly fashion such that some might be deducible from others, thus permitting an explanation to be developed from the phenomenon under consideration (Denzin 1978: 47). The corporate environmental behavior of the chemical firms examined in this research are better understood because of the models derived from this research.

Corporate environmental action is seen as being a function of certain pressures which are interpreted by corporate employees and others in certain ways. This research after coding and re-coding, then categorizing and re-categorizing the transcripts, has identified five major pressures that affect corporate environmental behaviors. These corporate environmental behaviors may include the taking of action, or the identified pressures may be interpreted as being minor enough that they can be ignored. The pressures on the firms are largely the same, and how the different firms interpret or make sense of these pressures is described and explained. Analysis shows that these firms weigh the significance of different pressures in different ways, and explanations are sought for these weightings. This chapter identifies the specific pressures that cumulatively result in environmental action for each of the six firms of this project. A weighing of the importance of each pressure for each firm has been determined. Differences and similarities between the six firms have been identified. The theory emerging from this chapter organizes the descriptions, leads to explanations, and offers a basis for predicting behavior in other firms in other locations.

Most analysis seeks simplicity so that complexity can be understood. Mitchell (1983: 205) claims that "complexity must be suppressed to allow the logical connections among some of the features to be understood and interpreted". This research seeks similarities among firms, and finds similarities as well as differences. Similar behaviors can result from different pressures or from different interpretations of the same pressures (RN-34). The focus of this research is on explanation, and to allow understanding, but without undue simplification or loss of complexity. Simplification of complex context is not an objective of this research.

The balance of this chapter is organized as follows.

a. The six cases are presented, all documented with direct respondent quotes.

b. Each case includes a point form summary showing the importance given to each of the one hundred indicators per firm, and these indicators are divided into twenty categories, which in turn are subsumed into five identified pressures.

c. A brief cross-firm analysis follows each of the six cases, and highlights major similarities and differences for each firm as compared to the other five.

d. A weighting system has been devised to show the relative importance given to each of the categories for each firm, and summary tables showing these results are available in Appendix J).

The following six cases are presented in random order: they are not ordered by company size, product, ecological awareness, or any other criteria. The firms are named Firm A to Firm F for simplicity. Naming the firms Numbers One through Six would suggest an ordering or ranking in some sense, and this is not the case. Very little descriptive background on the firms is offered except as glimpsed through the data quotes in Appendix A - F. This is purposeful, as corporate detail could easily be provided. To offer details of size, international standing, annual revenues, product range, or geographic location relative to Edmonton or Fort Saskatchewan may be of interest to the reader, and I am sympathetic to that interest, but this information is of minor relevance compared to the consequence of likely identifying the firms and so negate the anonymity promised to the firms by the researcher. Firm identity is already somewhat compromised by the use of thirteen hundred quotes for the firms as offered in Appendix A - F.

Explanation is required to explain how the cases are written. Each case opens with a point form summary of the four or five pressures identified through interviews with firm personnel. Each of these pressures is described in a few paragraphs. The case describes and examines the interpretation and meaning given by firm respondents to each of these pressures. The case offers a summary of the importance given to each of the one hundred indicators. These one hundred indicators were chosen by the researcher as being the most representative of respondent concern, and most common to all firms (RN-35).

These indicators were each judged by the researcher as being a "Low", "Medium", or "High" concern for the firm. Researcher error is possible in the delegation of this concern for any given indicator. Error would not be made between the "Not Mentioned" category and the three levels of concern. "Not mentioned" does not suggest a less than "Low" concern, but means simply that the specific indicator was not mentioned by any firm respondent in the data collection. Error is not likely between a "Low" or "High" concern, but error is possible between "Low" and "Medium", or between "Medium" and "High". This degree of error is possible for any given indicator, but over each category of three to ten indicators this error would be negated. That is, the degree of concern is not be over or under-estimated for all indicators in the same category, and so the category summary is quite accurate. These judgments are researcher judgments, but are all documented by direct reference to data quotations from respondents, and these data quotations are referenced to allow reader confirmation and independent judgment. The data has been organized from over 260 indicators to one hundred indicators into twenty categories then into five main pressures. All categories help explain the firm's interpretation and understanding of these five pressures for environmental action or behavior.

Each case is directly referenced by quotations from the respondent transcripts. These referenced quotations are all supplied in Appendix A - F. The quotes in Appendix A document Case A, and so on. This placement of quotation documentation in the appendix was a decision made for the several reasons:

1. To include all quotations in the text of the cases would make the cases very bulky and difficult to read, adding over fifty pages of single spaced material per case.
2. To offer only a few quotations for "flavor" could be misleading to the reader. Full disclosure was considered the more revealing approach, and the use of the appendix the most efficient method of including the information without confusing the flow of the narrative.
3. Each specific quote documents the statement made in the case, but specifics of language or wording or minor parts of a quotation may obscure the more general point being made by the respondent, and so be very distracting to the reader. The reference is given to document the statement made in the case, and is available for the reader without having to read the more than 150 pages of transcript per case to find the documentation for her or himself.
4. The quotations provide an audit trail and so increase the validity of the case analysis. The referenced quote allows readers to make their own judgment based on the representative quote, understanding that the researcher still has a deeper awareness of the data having read all of all transcripts innumerable times, not just the portion presented in the appendix.
5. Quotations are used in Chapter Four.

The references given (A -1, or B - 126, for example) refer to the numbered quote in the six appendixes A - F. With each numbered quote is the interview number, and the page number and line numbers where context of the quote can be found in the full transcript of each interview. These references are not exhaustive because every quote from every transcript is not used, as all quotes available were not germane to the research questions. Another benefit accrues to the researcher as further research is enhanced and enabled by this easy to follow system of reference.

3.2 FIRM A - THE CASE

Respondents from firm A claim that four major pressures effect their environmental behavior. Economic and liability considerations loom large in corporate consciousness, closely followed by concern about community expectations. Meeting government expectations and regulatory requirements are a driver as well. Personnel peer pressure and an awareness of corporate history and culture are also mentioned as influences on corporate environmental behavior.

Pressures Identified in Firm A

1. Economic and Liability Pressures
2. Community Pressures
3. Government and Regulatory Pressures
4. Internal History and Culture Pressures

Part One: PRESSURES

Economic and Liability Pressures

Firm A strives to achieve efficiency in all the environmental behaviors it undertakes. Continuous improvement in environmental behavior is sought (A -1), but always with the understanding that the ultimate objective of firm A is to make money, because "that is why we are here" (A -2). The cost of environmental improvement includes logistical considerations such as manpower and time availability, as well as financial constraints (A - 3).

Firm A executives feel pressures to achieve improvements now, as it is believed the longer improvements are left the more expensive they become (A - 4). Executives search for cost efficient ways of achieving environmental standards (A - 5), for the "smart way" to achieve their environmental goals (A - 6). From this search for "smart" ways, new products and savings have been found from what was once waste, so additional income and improved environmental performance has been simultaneously achieved for the firm on occasion (A - 7). When considering major projects, weak economic arguments can be bolstered by good environmental performance arguments (A - 8). Regardless of social or environmental benefit, environmental improvement is mostly seen as an economic benefit, at least in the long term.

The firm feels some international pressures for environmental behavior. ISO 9000 (RN-36) sets additional standards for behavior (A - 9). Additional environmental standards must be met on export goods into the United states for example, or unfair trade practice will likely be claimed by American producers (A - 10). Many standards now embedded in Albertan regulation originated in the United States or in Ontario, and regulatory changes in these external jurisdictions are followed by executives who are searching for opportunities regarding future behavior modifications before being hit with regulatory demands (A - 11). Even international incidents involving chemical firms have an effect on local management. For example, Bhopal (RN-37) was not only devastating for the community of that particular facility, but also had severe financial consequences for the global operations of Union Carbide, and awareness of all these consequences effects local corporate executive consciousness (A - 12). Bhopal also raised the awareness of local communities and governments to ask the question "can it happen here?", to which firm A executives would answer "Yes" (A - 13). Firm executives are aware that different countries have different environmental standards and this raises questions about environmental performance in their own facilities in Canada. For example, with China burning sulfurous coal to run its power plants, executives question whether having any emission controls in Canada make any sense in terms of global consequence (A - 14).

Banks, insurance companies, and other chemical firms all influence the environmental behavior at firm A. There is increasing interest from both banks and insurance firms regarding environmental behavior, and more specifically the liability to them that arises from the poor environmental performance of their customers (A - 15). Firm A meets many extra environmental demands to satisfy the conditions of it's insurance policy (A - 16). The concern from insurance firms adds another check on performance, as insurance firms occasionally do their own audits of environmental behavior (A - 17), and make recommendations for improved performance based on these audits (A - 18). The interest taken by bankers, even in the recent Berlin Conference on carbon dioxide emissions, confirms the concern with good client behavior expressed by financial lending institutions (A - 19). Firm executives believe that financial loan officers now take serious interest in firm environmental behavior and liabilities, and environmental specialists now check the environmental ramifications of every major loan application chemical facilities make to the banks (A - 20). Any loan may mean eventual foreclosure in a worst case scenario, and the banks do not wish to inherit serious environmental clean-up or other liability costs. Firm A executives feel fortunate that they are currently cash rich and so do not have to deal with their bankers (A -21).

Firms also influence each other's behavior (A - 22). The good behavior of other firms is copied (A - 23), and firm A executives talk frankly about trying to convince other firms to accept Responsible Care guidelines (see RN-26)(A - 24). For example, firm A followed the lead of Dupont in getting out of CFC production, essentially based on research done by Dupont and with little checking or analysis of their own (A - 25). Good environmental behavior is believed to create a competitive advantage against other firms. This is especially evident when firm A is in competition with other firms who may face trade and import/export barriers because of inadequate environmental performance (A - 26). That all firm A facilities in North America and Mexico are being brought up to the highest global standards confirms that pressure is felt in global markets (A - 27). That is, environmental standards are lower in Mexico, but to export into the American market the environmental production standards are expected to be the equivalent of American regulatory standards. Firm A executives believe that to achieve long-term success their environmental performance must improve while their liability falls (A - 28).

Legislation is changing (A - 29) and employees can now be held personally liable for bad firm performance (A - 30). With due diligence and personal liability now an issue "you take notice of a lot of different things" (A - 31). Executives expect to see many more personal fines being assessed by the courts and the regulators (A - 32). Liability costs from previous inadequate environmental behavior has already been dealt with by the firm. For example, fines and clean up costs because of leaking sludge ponds (RN-38) have already been paid, even though these ponds were always up to the environmental standards of the day when constructed (A - 33 & 34). Because of changed legislation, Board members can now be held personally liable for corporate behavior, and more attention is being given to environmental matters at the Board level, whereas environmental issues were rarely raised even ten years ago (A - 35). Major environmental problems or liabilities from any facility are now reported directly to the Board (A - 36). Board members from Bata, a footwear manufacturing facility in Ontario, have been jailed in Ontario (RN-39), and firm A believes this is because they didn't "have the culture and the vision to do better" (A - 37), suggesting that a corporate culture that is environmentally aware has very specific economic and lessened liability benefits..

Community Pressures

Firm A executives state they need the public on their side but "the chemical companies are still the bad boys" (A - 38). The only possible firm response to the public's skepticism is believed to be continued good environmental behavior by the firm (A - 39). The paradox may be that the public is also believed to be too passive to make use of their power (A - 40). Executives believe that the community has the power to influence the government, although few communities seem able to do so, yet the communities can also influence the firms if they wish to as "we're not deaf" (A - 41). The firm claims that efforts are made to listen. Operators note that community concern is handled directly at the plant site (A - 42 & 43), and that the firm is so concerned about facility impact on the community that toxicologists and other experts are often called in to analyze the potential risk to the local community from company processes (A - 44). Procedures have been established by the government for operating license renewals, and concerns from the community must be dealt with before the license is issued. Executives explain that politicians do not want problems on their desks (A - 45) and so community approval must be gained before licenses are issued. Operators believe that the community sets the ultimate standards for the firm (A - 46).

Activists are believed to influence both the community and the government, and firm executives consider most activists as being unreasonable and not prepared to ever be satisfied (A - 47). Activists, in the experience of firm A executives, are competent lobbyists with the government, but present a "slightly slanted" picture, and don't present the total picture (A - 48). Firm A executives feel this slanting may have backfired and believe the environmental movement is in financial trouble partly because they have lost their credibility with the public, as "the sky isn't falling" (A - 49). Executives believe the best way to deal with activists is on a quiet and more personal basis, where if you are judged fairly on your actions and away from the public arena, you discover common ground and solutions to problems (A - 50 & 51).

Firm A executives have similar concerns about the media. One executive stated he had never seen a newspaper article that was not "going to stick it to you". The firm attempts to balance the equation by presenting their version of the story and saying "these are the facts" (A - 52). The firm makes efforts to talk to the press, often through their industry association the CCPA (A - 53)(RN-40). Executives acknowledge there is a public market for environmental concern as witnessed by the number of magazines and journals that cater to that audience, and executives believe journalists attempt to find material to feed that audience (A - 54). The complaint about the media is that they are unfair. From executives' perspective, events or incidents involving the chemical industry are blown out of proportion and in-depth explanation is not sought. For example, the media could explain that emissions detrimental to the environment are mostly coming from sources like communities and personal automobiles and not from industrial facilities (A - 55). The consensus of firm respondents is that the firm is unfairly judged by both activists and the media.

Activists and media affect the firm's image, and image directly effects the public's opinion about the firm. The chemical industry enters the public opinion arena with a serious handicap, that being it's own history of bad environmental behavior. This admitted bad history demands that firms constantly work on their image as well as their processes and behaviors (A - 56). Firm A executives admit the industry still has safety problems, and that incidents still happen on a continuing basis. Executives believe that incidents from any chemical facility anywhere in the world reflect on the credibility of the local firm A facility. Answers to these image and behavioral problems do not come easily or cheaply (A - 57).

The costs of negative public opinion can be serious, translating into lost sales in the marketplace. Bad environmental behavior or even just the perception of bad behavior leads directly to economic consequences (A - 58 & 59). Exxon, for example, is believed to have lost market share after the Valdez incident (A - 60)(RN-41). Executives believe that you cannot survive in the marketplace or regulatory arena without good environmental behavior (A - 61).

Despite this espoused concern with public opinion, firm A executives wonder if the public is strong enough to force changes on firms, particularly in the global marketplace. If the consumer is powerful enough to demand compliance with ISO 14000 (RN-42), for example, then global trading practices would be changed. In the North American market, firm A argues it has already "done the 96%, we're just working on the last 4%", and so consumer pressure and public concern should now focus on international corporate environmental behavior in other countries, and the more global consequences of bad environmental practice (A- 62).

Government and Regulatory Pressures

Firm A executives are concerned about both current and future regulations (A - 63), and the simple reason given is that the facility can be closed down if environmental regulatory standards are not met (A - 64). Firm A does not intend to be closed down. Two beliefs of firm A executives are paramount: regulations and expectations will become tougher and broader, and, incremental and continuous progress is the solution to ever-changing environmental demands.

Regulations will constantly increase partly because increased knowledge creates the ability to better monitor and control environmental behavior (A - 65). Operational expectation can change quickly, and the challenge is to determine probable changes and to reach that level of performance before the government comes to firm A "telling them what to do or interfering in their business " (A - 66). New technology drives new regulation. For example, a closed-loop system (RN-43) like at Dow is not yet a regulatory demand on firm A, but is a future possibility to be prepared for (A - 67). One operator lamented that the last 4% of possible environmental improvement they were currently working on was really only the 4% that they knew about as "it all changes so fast" (A - 68).

One solution for the firm is to be in permanent continuous improvement mode. In one sense the government is not a concern because the firm believes itself to be ahead of current regulation (A - 69), but the firm is as worried about the interpretation of the regulation as they are about the actual written regulation. The questions asked of government includes: "What does this really mean?" and "And what do you really want?" (A - 70). The government is seen as controlling the timing of environmental behavior change, and although this is somewhat negotiated this is seen as a real pressure (A - 71).

The government is able to add new regulations at any time, and so regulation is identified by executives as the number one driver in the short-term (A - 72). Firm A executives worry about their ability to raise the many millions needed for a fast-track improvement, so prefer steady incremental change in advance of government regulation. In support of steady improvement, firm A approached government regulators in the late 1980s with a plan of incremental environmental improvements, and this has been built into their license approvals ever since (A - 73). Firm A spends fully one-third of it's capital budget on environmental practice (A - 74). Referring to the interpretation of the regulations, one executive is convinced that any regulations are written so that the firm can be punished at any time. Punishment is largely determined by a firm's track-record with the government, but "if they want to screw you they can screw you. There's nothing you can do about it" (A - 75).

Internal Pressures

Fifteen years ago good corporate environmental behavior was more likely voluntary and driven by individuals within the firm, but government has now become the larger driver (A - 76). Still, internal pressure such as Union and employee concern is present and strong. Unions are now more cooperative with management than in previous years in dealing with safety, and health, and environmental matters (A - 77 & 78). Workers pressure each other to force and encourage good behavior, but will not likely report co-workers to management for bad behavior (A - 79). Internal firm auditors play a role as well, offering suggestions for environmental improvements that may lower liability or risk (A - 80).

Operators are more aware of the consequences of bad behavior, partly because of new technology that allows better monitoring of behavior (A - 81). Operators feel pressure from family and friends to be environmentally responsible (A - 82 & 83). Operators and executives are aware of environmental regulatory trends in other jurisdictions (A - 84), and so have some expectation of coming changes, but also want these changes to create safer working conditions for themselves (A - 85 & 86). Global incidents like Bhopal also create internal pressure because the firm CEO and other executives do not want the responsibility for a disaster being attributed to them personally, or to the firm (A - 87).

Part Two: FIRM INTERPRETATION OF PRESSURES

Interpretation of Economic and Liability Pressures

Firm A spends millions of dollars every year on environmental projects, one year alone spending thirteen million dollars (A - 88). The firm will spend between twenty and thirty million dollars over the next five years on a waste treatment plant alone (A - 89). Environmental behavior that is expected and must be done because of regulation is believed to become more expensive the longer it is left (A - 90), and the dilemma for management is that both production and environmental projects require capital, and many environmental projects are not expected to show a return (A - 91). Even so, environmental projects are often funded over production projects (A - 92), although firm profitability is a requirement before the consideration of any project, environmental or otherwise (A - 93). Chemical firms operating on thin margins may be forced to close because of the cost environmental compliance, although firm executives were unable to offer any direct examples. Executives claim that vision as well as money is needed to achieve good environmental behavior. Some programs, such as emergency response (RN-44), are very expensive to run and show no return at all, yet must be available for use by firm A and others, even to non-CCPA members (A - 94). Environmental programs may not have a monetary payback, but executives believe that good environmental behavior allows the firm to stay in business (A - 95). Environmental compliance has become a cost of doing business. The occasional environmental program does show a return either because of reduced waste disposal cost, or even because of saved product (A - 96).

Some environmental projects are undertaken to reduce liability, and liability is seen as a future economic cost. The production of certain products at firm A has been terminated because of liability concern (A - 97). Even land purchases are examined closely to determine what liabilities may be present (A - 98). Under new environmental laws, the owner of a property is responsible for the environmental clean-up of that property regardless of who caused the problem to begin with. Firm A has bought up land surrounding the facility, and has landscaped it, mostly for reasons of reduced liability should firm A ever suffer an explosion or other serious incident (A - 99). Employees at the firm believe that risk can be minimized but not eliminated. These land purchases serve as an example of long-term planning at firm A.

The spending of over fifty million dollars in the past decade is seen as part of long-term planning and care at the facility (A - 100 & 101). An executive offers the example of a Texas facility in the firm A family that ignored their environmental responsibilities for as long as possible while maximizing profit, and was then hit with a thirty-million dollar bill for clean-up and catch-up. Head office decided not to spend the equivalent of five years profit to "fix" the plant, and instead it was closed. The executive's point is that a regular spending of perhaps two or three million per year would have kept the plant at compliance level, still showing a profit, and still surviving today (A -102). Employees at the Texas facility lost their employment because of bad corporate practice, and executives at firm A intend to keep their jobs. Firm A wants efficient allocation of all resources including capital, people, and systems (A -103). Firm A does not spend any money without care however, even on environmental projects:

"We're not going to spend any more money than we need to spend unless we understand how we're spending it" (A - 104).

Firm A is very aware the definition of good environmental performance is changing constantly (A - 105). As knowledge and technology expands, so do demands for environmental behavior on the firm (A - 106). Although some behavior is undertaken to show due diligence and may be more a public relations concern than an environmental concern (A - 107), the firm does make serious efforts to understand the consequences of various incidents from all over the world (A - 108), just as spending is undertaken in Canada because of firm experience in the USA (A - 109). Some of this learning is driven from head office in Dallas, and some by local initiatives.

Firm A prioritizes it's environmental projects, and tries to be efficient, understanding that it cannot do everything at once (A - 110). The financial cost is only a part of the constraint on environmental projects, also affected by the need for the right people, time, and other logistical support (A - 111 & 112). Operators believe the firm is doing all it can and is "doing a tremendous job" considering all the constraints (A - 113). Executives believe they are going as fast as they can given the money and human and technological resources available (A - 114).

Firm employees see the firm as proactive, and believe that being proactive is cheaper in the long term than being non-active (A - 115). The firm strives to stay within it's budget, and tries to be "a little bit ahead for tomorrow because you don't know what tomorrow will bring" (A - 116). Environmental work must be incremental or else needed improvements could backlog and become un-doable as with the earlier example of the Texas facility (A - 117).

Firm A executives see a very definite link between community and public opinion of the firm and firm profits and ability to survive (A - 118). Boycotts of firm product are a possibility if bad environmental behavior is perceived (A - 119). The community could shut down the firm in an extreme case (A - 120 & 121), although no examples of this ever happening were offered. The public, even though demanding ultra-clean performance from industry, is believed by firm employees to be the major cause of pollution. Firm executives believe that environmental performance impacts firm financial performance (A - 122) and could also impact stockholder confidence because environmental liabilities impact future profits and dividends (A - 123). Environmental performance in the long and short-term is believed to affect economic performance in the long term (A - 124). Executives are convinced that management too focused on the bottom-line and not enough on the future are "way behind the eight ball" (A - 125).

Interpretation of Community Pressures

Firm A executives believe the community is ignorant about firm behavior and safety, yet passive and uninterested about what the firm does. Neighbors of plant operators express no concern about plant operation (A - 126). On-going communication is attempted with the community but this is found to be frustrating and not effective.

Executives believe the viability of firm A's facility includes environmental and liability issues as well as financial, and public perception of plant safety and behavior certainly impacts the social environment of the plant (A - 127). The creating of a positive image of the facility is understood as a driver for good behavior (A - 128). The firm wants a positive public image, but understands that public image is easily damaged (A - 129). The firm has more public relations programs than it used to (A - 130), but is also leery of too much self-promotion because firm behavior is not excellent in all areas and the focus on good behavior and exclusion of the not-so-good could back-fire on the firm (A - 131 & 132). The purpose of any public relations effort is to convince the community and the public that all "reasonable" precautions are taken at the firm, but the public is unconvinced that firm A is "a good, safe, quality corporation" (A - 133). The firm's executives and operators do not deny that a worst case disaster scenario would have serious consequences for community safety, and so "reasonable" precautions can never be good enough in the public's eye.

Firm operators and executives are both convinced that the community and the public has "a hard time even grasping the idea of what goes on here" (A - 134). Perception is believed to be reality to the public (A - 135), and because the public does not know what chemical firms do or how they work, they are "afraid because they don't understand" (A - 136). This public perception is seen as unfair but still a reality (A - 137 & 138). The public may be confused because there is too much information available (A - 139), or perhaps because lacking scientific awareness (A - 140), but is believed to see all chemical facilities as dangerous (A - 141). Firm A is viewed generically by the public as just another chemical firm (A - 142), regardless of firm A specific behavior (A - 143), and this public perception is simply considered wrong (A - 144). The consensus of firm personnel is that the firm is unfairly punished by public opinion, especially considering that the public's behavior is believed to be worse than the firm's (A - 145). The public is seen as being ignorant about the connection between their own behavior and the problems of societal waste and pollution (A - 146). One executive explains that he does not "think the public knows what it's talking about most of the time" (A - 147), and so the public is seen as not only hypocritical about it's own behavior, but also unable to recognize good firm behavior (A - 148).

Combined with this public ignorance about firm behavior is an indifference to finding out about firm behavior. Executives believe the community assumes corporate behavior is adequate (A - 149) because no concern is shown until there is an incident (A - 150). Well advertised public forums and meetings have been held by the firm where no-one has shown up (A - 151), so although the public is fearful of chemical firms, the public is also passive. Perhaps the local community has become blasé about the large chemical facilities on their doorsteps. One executive summed up the local community with this comment: "If you don't noise them out, or stink them out, or evacuate them out, people will let you live" (A - 152).

Still, firm A executives feel they must provide information to the community even though unappreciated, and this is "part of our responsibility to the community" (A - 153). Pamphlets on emergency response capabilities are sent to community members several times a year (A - 154 & 155), and firm A participates in trade fairs (A - 156), and hosts open houses (A - 157). A report card on emissions reduction is sent out to identified stakeholders (A - 158).

Firm A has established a Community Advisory Panel (RN-45) which sets it's own agenda (A - 159), and firm A is hoping for more effective two-way communication through this panel (A - 160). Other community alliances are also attempted (A - 161). Receiving feedback from local communities is now required by government as part of license renewal, and this is seen as scary because "it's a new path for us" (A - 162). Any complaint from the community is given immediate attention (A - 163).

Firm A finds it's attempts to communicate with the public to be frustrating, unproductive, and expensive (A - 164). The firm does not want to spend "another batch of money uselessly for things that people won't attend" (A - 165). Firm A makes efforts to identify societal trends and to be aware of what "people will just not accept anymore" (A - 166). The firm recognizes that historically it likely deserves a bad reputation (A - 167), but also raises and donates huge sums of money for community activities such as United Way, Block Parents, and the Food Bank (A - 168 & 169), and feels unappreciated for these efforts. The firm has a real concern with worker and community safety (A - 170), and wants to be open and honest with the community (A - 171). The firm feels that employees know what is going on, and hopes that knowledge and confidence filters out to the community (A - 172). Firm A recognizes that different stakeholders may have different expectations (A - 173), and that different firms may have different stakeholders (A - 174), and this affects their behavior. Overall, the firm feels that the community is more interested in economic and fiscal issues than environmental issues (A - 175). The firm listens and wants to listen to the community, but also has it's own agenda and schedule for environmental improvements (A - 176), and has confidence that it's contributions to the economic and social well-being of the community far outweigh any negative environmental impact the facility may have (A - 177).

Firm A wants to cooperate with activists, and operates an open door policy regarding information and access. Executives felt that activists "go out on the wild side to get people's attention" (A - 178). Activists are considered professional and firm A executives feel that government listens to activists partly because the public is so passive (A - 179). The media receives less respect from the firm. The media is seen as unhelpful, misleading, possibly ignorant, and reporting of chemical incidents or behavior "gets blown all out of proportion" (A - 180). Firm A executives view journalists as salesmen, and "bad news sells newspapers" (A - 181).

Interpretation of Government and Regulatory Pressures

The government is believed to respond to emotional appeals from the public (A - 182 & 183), yet at the same time is seen as being fair and reasonable to deal with. The government tries to set reasonable standards that are achievable after discussion with the firms, and realizes "there is no point to trying to climb Mt.Everest without having the right stuff" (A - 184). The government agrees with planned incremental environmental changes (A - 185), and firm A executives believe that regulatory compliance is best achieved through long and detailed discussion with government regulators (A - 186). While these discussion are on-going, the government should recognize excellent environmental behavior by specific chemical firms, but also the great strides that the industry has made (A - 187 & 188). An example is offered of how emission standards were negotiated as part of a new license approval and plant expansion (A - 189), and this recognizes that firm A executives know "how to run our business and do it well" while setting some targets and limits (A - 190).

The government is seen as pandering to public perception, and attempting to look good to the public (A - 191). The government is seen as being afraid to push environmental improvements and changes onto the municipalities partly because this might cost government money (A - 192). The government appears proactive by pushing the firms but at the same time not really doing much to create overall environmental improvements by encouraging change in the behavior of the public. Political solutions are rarely the best technical or cost-effective solutions from the firms perspective (A - 193). Overall the government is seen as doing a decent job regarding safety, health, and environment (A - 194), and there is a growing trust between government and the chemical firms in Alberta (A - 195).

Firm A reports all leaks (A - 196 & 197) and incidents (A - 198) to the government, regardless of how small. Firm A executives feel that charges laid by government regulators on the various firms are meaningless, in that responsible firms may report a minor spill and thereby receive a fine, yet the less responsible firm may not report the spill, so not be fined, and accordingly be technically more responsible because receiving fewer fines or notices. Even improvements made to facility processes are reported to the government (A - 199). This is done partly to comply with a myriad of regulation, but also to remove the guess work and decision-making involved for firm employees if only some changes are reported. Firm A employees, because of education and awareness are expected to view regulation as a challenge instead of as an obstacle (A - 200). Increasing regulatory demand is understood as relentless and "is going to come regardless" (A - 201). The firm is not particularly worried about meeting current regulation (A - 202 & 203) and this is because the firm has created a buffer for themselves between regulation and practice (A - 204). "I laugh at Alberta Environment" says one executive, who sees regulation as unfair because the government is too harsh on companies yet too easy on the public and the municipalities (A - 205).

Standards and expectations are constantly increasing, but the firm looks at "measured progress to meet our customer, and our customer in this area is really the public and the local authorities" (A - 206). The firm can never be satisfied with it's performance as standards constantly become more stringent (A - 207). Firm A executives follow change in other jurisdictions closely (A - 208) because regulation is seen as increasing in sharp jumps with short lead times, and firms who are not prepared in advance might miss deadlines (A - 209). Closure of even one process at the facility is feared because the plant is so intermeshed that the whole plant might go down with the closure of a single process (A - 210). Much regulation has a short-term focus which is not seen as efficient or cost effective (A - 211) and so firm A prefers to deal with the intent not the letter of the law (A - 212). Firm A employees interpret regulation to their advantage even as they accuse the government of doing the same. Yet, firms or managers that attempt to evade regulation are considered to be "shysters", and "they're just like crooks" (A - 213). The government is recently perceived as taking a more passive and hands-off approach to regulation, where if the firm satisfies the public's demands the government will be happy" (A - 214). Power is perceived as shifting to the community.

Interpretation of Internal Pressures

The first step in environmental awareness is frequently the conservation of energy or other resources, and this was the pattern at firm A (A - 215). Specific behaviors include trying to stop all leaks (A - 216), removing asbestos (although perceived as presenting no risk) (A - 217), and getting out of CFCs production and use even though other firms are stockpiling them so that their processes won't have to be changed (A - 218). Behavior has changed dramatically in the past twenty years, when the firm used to flare without controls (RN-46) had open sludge ponds (A - 219), and even checked for emission leaks by human "sniffing" (A - 220). Operators believe that minor incidents can be contained within the plant, and so environmental impact on the wider community is minimal (A - 221). Any spills gets an automatic investigation (A - 222). Executives are realistic about the capability of their forty year old facility (A - 223), and operators believe that the firm undertakes more environmental behavior than most other firms (A - 224), and that other firms and the public has much worse behavior (A - 225). Operators also believe that some safeguards go too far (A - 226). With the constant improvement of process they have gone so far they "can actually recover something" (A - 227). Executives believe that the projects able to show sizable reduction of emissions have already been done (A - 228), and so to continue to achieve reductions in emissions and other areas causes some concern about what to do next (A - 229). Firms with less prior environmental behavior have an easier time in achieving some of the percentage based improvements demanded by regulation.

Technology is viewed as a driver of new regulation (A - 230), but also leads to greater understanding (A - 231), and better knowledge as to product side effects (A - 232). Technology also changes the jobs in a chemical facility, and how they are done (A - 233). Firm A operators understand this process as a result of regulation but also because of the greater accuracy and rigor of technologically improved instruments (A - 234 & 235). This greater volume of information is now passed on to the community who really does not know what to do with it (A - 236). Technology occasionally leads to new products from what used to be waste (A - 237), but firm executives believe the upper limits of process improvements have pretty well been reached (A - 238). Emissions are now checked by sophisticated monitors for traces of dozens of chemicals, whereas in the 1960's even carbon dioxide levels were not monitored (A - 239).

A stated objective of firm A is to have a happy and knowledgeable work force that has a positive attitude toward the environment. Operators get all their questions about the environment answered, either through information sessions or meetings (A - 240, 241, 242, & 243). Firm A executives want satisfied operators and seem convinced that bad environmental behavior will translate into a dissatisfied workforce (A - 244 & 245). The operators feel they can honestly carry a positive environmental message from the firm to the community (A - 246, 247 & 248). Management has a much more positive attitude towards workers in the last few years (A - 249 & 250), but operators will be reprimanded or disciplined for unwise environmental behavior (A - 251). Operators have great pride in the Emergency Response team, which is considered one of the best in North America (A - 252). Firm A executives very much want the cooperation of the employees and the Union because much of environmental behavior is believed to be contingent on employee attitude and therefore cannot be mandated. Employees and management cooperating to solve environmental problems is seen as a matter of firm survival (A - 253).

Environmental concerns have been attached to the health and safety department at firm A, and this is considered a wise move as the health and safety department is given great respect in the firm (A - 254, 255 & 256). A joint manual for Safety, Health and Environment is being developed (A - 257). Firm A regularly schedules meetings where problems and incidents are discussed and examined in an attempt to stop them happening again (A - 258 & 259), and environmental issues are now included as part of these meetings (A - 260). The corporation does not distinguish between safety and the environment (A - 261), and operators consider themselves proactive in looking out for the environment (A - 262). Significantly, when firm A was going through downsizing over the past several years, safety and environmental budgets were not reduced (A - 263). An objective of firm A is to minimize risk to public health or the environment (A - 264).

Executives define the culture of firm A as simply to do "the right thing for the future" (A - 265). Determining what is the right thing to do is more complex, and may require the industry to move forward together (A - 266). Personal responsibility for good environmental behavior is more apparent at firm A than a few years ago, and legislation aimed at personal liability for environmental error makes "you stop and think" (A - 267). Individual support from all plant employees for the environment is critical and needs to be dependable and consistent. Every spill must be reported and impacts the probability of easy passage of license renewals, and "If we don't get a license to operate, none of us are employed. It's that simple" (A - 268). Local management influences facility behavior (A - 269 & 270), and the Edmonton facility is fortunate to have long-tenured executives who enact long-range plans instead of looking for short-term financial windfalls by ignoring broader responsibilities (A - 271).

Firm A is unique among the firms in the vicinity, and likely among all the facilities in corporation A because of the long-tenured top leadership in the firm. This allows long-term planning with some expectation that these plans would be carried through, but also creates head office faith in the local leadership resulting in their being given exceptional autonomy to run their business (A - 272). The environmental awareness of senior executives is a major driver, and they believe "environmental concerns, health and safety concerns, are rapidly going to be running the business" (A - 273). Some executives believe that this leadership vision and support is the main driver for good environmental behavior, also pushed a little by regulation and license requirements (A - 274). Spending huge amounts of money does send a clear message through the organization that leadership is serious about the environment (A - 275), but doesn't explain how this vision evolved. Executives believe that a long-term view (A - 276), support from top executives, and spending money as required is all required to stay in business for another twenty years (A - 277). Executives want long-term proactive thinking from all employees (A - 278), and this is a logical extension from the expanded role of the plant manager who is now responsible for corporate social responsibility in a societal context (A - 279). Executives want to be seen as "an upright citizen", and specific behaviors do follow from this desire (A - 280).

Certain behaviors follow directly from these vision statements. Value statements are prominently posted at firm A, and manuals exist for many processes (A - 281). Proper procedures are laid out for all operators (A - 282), and a basic premise is that production is no longer the number one concern of the firm (A - 283). The lagoon system at firm A was dismantled and cleaned up at great expense, because of perceived future problems and liabilities even though the lagoons were all at current regulatory standard and met all current government requirements. One executive commented that "life's not fair" (A - 284). Executives wish to stay far ahead of regulation (A - 285), and both executives and operators want to create a safer workplace both for the employees and the environment (A - 286). Safety and environmental audits are conducted annually, and "check everything" (A - 287), and the CCPA conducts it's own audits to confirm that firm behavior as reported to the CCPA to meet membership requirements is really happening (A - 288). Responsible Care offers an excellent framework, operators believe, for achieving environmental quality and community acceptance (A - 289). Even an annual environmental report card has been started (A - 290).

"The only way you can run this plant safely is to shut it down" states one executive (A - 291), and so firm A is serious about risk management. Firm A executives take the view that "It can happen here" (a reference to Bhopal), and they plan their emergency response accordingly (A - 292). The ideal situation is to take no risks at all (A - 293), but just being in production and being open and in operation is risky (A - 294).

The firm has a long-term vision of what it wants to be, and this is to turn out a quality product "in a safe and environmental way" (A - 294). The firm wants to be proactive and five years ahead of regulation (A - 295), and one executive explains that when you desire to "be here another forty years, it kind of colors how you do things" (A - 296). Being prepared for tomorrow only makes economic sense (A - 297), but also means taking a more holistic view, for example changing process procedures instead of adding more equipment and facility to cope with process failings (A - 298). The broader implication of practice and capital spending programs are now more carefully considered than the previous system of specific problem focus. A quality organization should be ahead of regulation (A - 299 & 300), and tackling environmental matters in a timely manner is only part of being responsible, as one executive stated, just "bite the bullet and get on with it" (A - 301). A cradle-to-grave awareness has been adopted (A - 302)(RN-47), following product from raw material through to end use. Closure awaits the firm that is environmentally unaware (A - 303).

Firm A employees believe that Responsible Care is the answer for the chemical industry. The Responsible Care standards are worthy of being followed by all firms (A - 304) and are directly incorporated in firm A operating practice (A - 305). Some chemical firms are still not willing to accept Responsible Care (A - 306) and this could be because of the cost of meeting the Responsible Care codes of practice. Membership in the CCPA costs firm A about one million dollars per year (A - 307). Despite this voluntary and expensive behavior in firm A, executives are frank about the performance of the chemical industry: "Nor are we lily white in industry ... (but) we have made significant progress over the years" (A - 308).

Firm A executives believe public behavior to be irresponsible in the extreme (A - 309), but the next major environmental improvement will have to come from the public, and this is not seen as likely (A - 310). This is unfortunate because stringent controls on all business practice will only come if the customer / consumer demands environmentally good behavior from all firms (A - 311). North America is not viewed as perfect, but executives believe that North American standards are far superior to Mexico, where deaths in chemical plants have recently occurred (A - 312), or in China where there seems to be no rules or guidelines at all (A - 313 & 314). Global environmental behavior needs more attention and so does public behavior in North America. Firm behavior is believed to lead the way in both arenas.

Part Three: INDICATORS

INDICATORS FOR FIRM A

ECONOMIC - COMPARATIVE EXPRESSED CONCERN -- FIRM A

	not mentioned	Low	Med	High
EFFICIENCY CONCERNS				
Efficiency (less waste) is also a lower liability		A		
Large projects cause stalling in small projects	A			
Firm wants efficiency in environmental spending			A	
Improvements become more expensive over time			A	
Being pro-active not that expensive		A		
Environmental projects usually don't show return		A		
Some behaviors very expensive but must be done			A	
LIABILITY CONCERNS				
Risk management because of liability awareness			A	
Economic analysis is only meaningful analysis	A			
Pressures from banks and insurance companies			A	
Personal liability				A
Liability is a future economic cost			A	
Environmental performance impacts economic performance			A	
Better systems give lower plant liability	A			
Liability concerns is large driver of behavior				A
COST AND CONSTRAINT CONCERNS				
Production is the number one priority			A	
Connection between large firms with big budgets and beh	A			
Firm must be efficient and make money, cost efficiency				A
Making money is the only motivate	A			
Financial cost of environmental behavior is huge				A
Must spend on environmental behavior or close down				A
Open cheque book for environment	A			
Benefits from good E behavior more than economic			A	
Impacts stockholder confidence, financial constraints, budgets		A		
Aware of firm economic power in community	A			

GOVERNMENT COMPARATIVE EXPRESSED CONCERN -- FIRM A

POWER OF REGULATION

Regulation establishes level playing field	.A	.	.	.
Government controls timing of regulatory change	.	.A	.	.
Regulation is number one driver in short-term	.	.	.	.A
Regulation safeguards community and environment	.A	.	.	.
Regulation is expensive to firm and government, not needed	.	.	.	.A
Regulation will get tougher and broader, could shut you down	.	.	.A	.

MOTIVATION OF GOVERNMENT FOR REGULATION

Government afraid of public, responds. wants to look good	.	.A	.	.
Govt hands-off to environment, economic concerns	.	.A	.	.
Env awareness and tech knowledge drives govt	.	.A	.	.

FIRM DEALING WITH REGULATION

Continuous improvement, pro-active, create buffer	.	.	.	.A
Interpretation of regulation as important as regulation	.	.	.	.A
Govt negotiates on regulation, personal history and trust	.	.	.A	.
Report honestly, report everything	.	.	.	.A
Firm and government face the same pressures	.A	.	.	.
Worried about meeting current regulation, fines for violations	.	.A	.	.

GOVERNMENT COMPETENCE

Government ineffective and incompetent	.A	.	.	.
Industry could be self regulating, leads govt	.	.	.A	.
Regulation irrelevant, firms regulate themselves	.	.A	.	.

CUSTOMER COMPARATIVE EXPRESSED CONCERN -- FIRM A

CUSTOMER SATISFACTION

Customer is the number one stakeholder and driver	.A	.	.	.
Can win awards for customer satisfaction	.A	.	.	.
Need good environmental behavior for customer satisfaction	.A	.	.	.

FIRM MUST EDUCATE CUSTOMER

Customer needs to be educated by firm	.	.A	.	
Customer needs to understand firm position in Industry	.	.A	.	
Help customer with safe product usage	.A	.	.	

WHAT DO CUSTOMERS WANT

Customer may seek the lowest price	.A	.	.	.
Recognition for Environmental excellence a competitive edge	.	.A	.	.
Quality product and lower price is the real strength of the firm	.A	.	.	.

COMMUNITY
COMPARATIVE EXPRESSED CONCERNS -- FIRM A

POWER OF COMMUNITY

Need to be pro-active to get message out to community	.	.	.A	.
Need public on your side, public sets ultimate standard	.	.	.	.A
Community can influence government	.	.	.A	.
Try to keep the public satisfied, answer their concerns	.	.A	.	.
Community is powerful and can punish firm	.	.	.	.A

PUBLIC EXPECTATIONS, PASSIVITY

Public expectations are constantly increasing	.	.	.A	.
Community concern is mostly health, safety and Economic	.A	.	.	.
Public is passive, ignorant, and doesn't care	.	.	.	.A
Public is afraid, emotional, and concerns are personal	.	.	.A	.

IMAGE AND PUBLIC RELATIONS

Firms have negative public image, seen as all the same	.	.	.	.A
Firm must be a good neighbor, contribute to comm.	.	.	.A	.
Public relations function is critical	.	.A	.	.
Concern about activists and media	.	.	.A	.

PUBLIC BEHAVIOR AND INFORMATION

Community pollutes worse than the firm, firm safer than home	.	.	.A	.
Community learns from employees, employees parts of comm	.	.A	.	.
Firm learns from stakeholders, public not single entity	.A	.	.	.
Disasters anywhere in world raise public consciousness	.	.	.	.A

INTERNAL
COMPARATIVE EXPRESSED CONCERNS -- FIRM A

EMPLOYEES AND THE UNIONS

Concerns with the Unions	.	.	.A	.
Employee and peer pressures	.	.	.A	.
Pressures on employees from family and friends	.	.A	.	.
A satisfied employee is a happy employees	.	.	.	.A
Firm disciplines workers for poor environmental performance	.A	.	.	.
Firm supplies an abundance of information for employee	.	.A	.	.
Firm has many long-term employees, many senior staff	.	.	.	.A

FIRM INTERNAL SYSTEMS, AUDITS

Firm audits safety, health and environmental behaviors	.	.A	.	.
Firm audits suppliers for safe environmental behaviors	.	.A	.	.
Much autonomy from head office	.	.	.A	.
Spending huge amounts of money sends a message	.	.	.A	.
Responsibility includes timely behavior	.	.	.A	.
Internal systems hinder environmental improvement	.A	.	.	.
Firm has internal competition for environmental funds	.A	.	.	.

VALUES. CULTURE. LEADERSHIP				
Vision statements, personal responsibility, firm values	.	.	.	.A
Env awareness of senior executives, responsible culture	.	.	.A	.
Have a longer term and more Env. focus than before	.	.	.	.A
Responsible Care Program. CCPA standards	.	.	.	.A
Firm a model for the Industry, performance pride	.	.A	.	.
Number one priority health and safety, safer workplace	.	.	.A	.
INTERNATIONAL AWARENESS				
International pressures and awareness	.	.A	.	.
Firm has an awareness of international incidents	.	.A	.	.
International pressures and standards affect firm practice	.	.A	.	.
GOOD BEHAVIORS ALREADY ACHIEVED				
The best projects are already done, technological limits	.	.	.A	.
Env. incidents can be contained, preventable accidents	.	.	.A	.
Technology allows change and improvement	.	.	.A	.
OTHER FIRMS				
Insecurity and inferiority complex about other firms	.A	.	.	.
Help other firms with environmental advice and help	.	.A	.	.
Best achievement by any firm should set new standard	.	.A	.	.
Pressures from other firms, competitive advantage	.	.A	.	.
More pressure on large firms because small firms lack $	.	.A	.	.

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Part Four: SUPPLEMENTAL COMMENT FOR FIRM A

The main concerns of firm A are centered on community and internal concerns. These two concerns are followed by economic and government / regulation concerns, with almost no concern expressed about customer needs.

Of the six firms in the sample, next to firm B, firm A expressed the most concern for Community issues. Firm A was convinced, as were all firms except firm F, that the community was very powerful. Specifically, firm A expresses the belief that the community is powerful and can indeed punish the firm for improper behavior. Firm A also believes that any chemical facility needs the community on its side because the public sets the ultimate standard for correct environmental behavior. Yet firm A also believes the public to be passive and ignorant. This results in the community being seen as a powerful but uneducated force, one that is able to influence government and therefore firm behavior, but from a foundation of emotionalism. This is further worrisome as firm A believes that the public has generally a very negative image of all chemical firms, and can act negatively to firm A based on this perceived image of the industry.

Firm A identified internal forces as being influential in determining the corporations environmental behavior. Concerns about employees needing to be satisfied with firm performance were mentioned as a driver for good behavior. This was also made easier because the firm has many long-term employees, and particularly senior staff with long tenure at the facility. Firm A expressed more concern about Unions and the influence of the Unionized workers than did any of the other firms. The major area of firm A internal influence was identified as being in the realm of values and leadership. That vision statements and firm values were driven by the conviction of personal responsibility was suggested to be a major influence. A long-term focus on firm success was also suggested as an influence, and firm A was more convinced than any other firm of the value of timely environmental behavior. Responsible Care and the CCPA values and philosophical grounding was suggested as the core of firm A's values and standards.

Although firm A had a healthy respect for economic concerns, specific concerns that set firm A apart from the other firms were evident only in the area of personal liability. Liability issues generally were very present in firm A consciousness, with six of eight indicators receiving a high or medium rating. Firm A also is convinced that the financial cost of environmental behavior is huge, but that these behaviors must be accomplished or the firm will be forced to close. As do all other firms, the firm expects efficiency in environmental spending as in all other spending.

Along with firms D and F, regulation is seen as the number one short-term driver by firm A. Firm A also strongly believes that regulation is bound to become tougher even though largely unnecessary and very expensive to both the firms involved and the government. Firm A wants to be seen as pro-active, maintaining a buffer between required behavior and practiced behavior, and the negotiated interpretation of the written regulations is seen as being as important as the regulation itself. Firm A also believes that honesty with the regulators is the best policy, including complete disclosure of all behaviors including problematic behaviors, and this builds a relationship of trust which in turn assists when negotiation with government takes place.

Firm A expressed no concern with customer satisfaction, and very minor concern with education of customers, although a cradle-to-grave product concern was expressed.

3.3 FIRM B - THE CASE

Employees of firm B identify five pressures that influence it's behavior. The community and government regulations are identified as the two major determinants of firm B awareness and behavior. These two main factors are followed by three other influences, namely: economic and liability pressures, internal corporation pressures, and the behavior of the industry and other firms.

Pressures Identified by Firm B

1. Community Pressures
2. Government and Regulation Pressures
3. Economic and Liability Pressures
4. Internal Pressures
5. Industry and Other Firm Pressures

Part One: PRESSURES

Community Pressures

Firm B's environmental awareness and behavior is mostly driven by executive perception of public perception, and the government (B -1). Firm B executives are convinced that the public can drive the behavior of the firm even though sometimes this is not in the best interests of the firm or the environment (B - 2). The challenge identified for firm B is to convince the public that the firm is socially responsible (B - 3), and therefore will take care of the public's best interests as well as their own. This can be done through exhibiting responsible behavior, then communicating this behavior to the community. Executives are aware that the temptation is to more simply depend on public relations, with or without the behaviors to back up the message, but the main purpose of these actual behaviors and public relations actions is to mollify the public (B - 4). Ecological concern itself is rarely mentioned. As an example, firm B has purchased neighboring houses from individuals when the firm considered that those individuals were never going to be comfortable with the proximity of their homes to the newly established firm B facility (B - 5). The actual cost to the firm of purchasing these homes is negligible as they can be resold, but the effort was made to satisfy community concern, even at the expense of removing community members from the community. Executives feel it is difficult to find competent ways of communicating with the public (B - 6), and even convincing their Community Advisory Panel of their responsible behavior does not necessarily reassure the public (B - 7). Communication with the public has only been a firm priority for about eight years (B - 8). The community needs to be convinced that a disastrous incident "can't happen here", but even if it did that adequate emergency response is available to insure their safety (B - 9). The public relations function is considered critical at firm B, and now is used in tandem with all phases of development and process (B - 10).

Firm B finds the media and activists to be confrontational, and would prefer to have no media attention at all (B - 11). Attempts are made to cooperate with both media and activists in an open and friendly manner (B - 12), but activists are seen as a challenge (B - 13) and certainly pressure the firm toward certain behaviors (B - 14).

The firm feels that sometimes perception is "more important than what's really going on" (B - 15), and so takes great effort to avoid any negative public perception (B - 16). The firm jockeys for position in the public opinion area with other interested parties (B - 17), and this reinforces the importance of image to firm B (B - 18). The actual financial cost of fines for bad performance, for example, are viewed as less important than the public exposure received by the firm because of the fine (B - 19). Legitimation with the public is critical, as public acceptance is required to allow future expansions (B - 20), and the firm wants to be seen by the public as being socially responsible and doing the right thing. This acceptance by the public is not easily won, and firm executives feel that the firm is not appreciated for its environmental practice or even for the amount of taxes it pays (B - 21).

Government and Regulatory Pressures

Firm B executives want no difficulty or conflict with the government (B - 22). Operators believe that the government can "pick-on" any firm it wants to at any time it wants to (B - 23). The license to operate is the ultimate control by the government, and the license demands certain behaviors from the firm (B - 24) including public consultation which is now demanded by the government prior to a license approval (B - 25, B - 26). Being closed down by the government for an environmental violation is not considered a realistic threat (B - 27), and fines are seen as financially irrelevant (B - 28), yet firm executives claim that the firm is mostly concerned about the community and the government (B - 29). Firm B executives believe their firm is at greater risk than most firms simply because firm B is so huge, and executives believe government prosecutes and expects better behavior from larger firms than smaller firms (B - 30).

Regulation is a main driver for firm B, and is seen as the government forcing behavior onto the firms (B - 31). The change in regulation is sometimes quite sudden (B - 32), and firm B attempts to keep awareness of probable future regulation in mind when deciding on their behavior direction today (B - 33). Firm B is specifically pressured by regulatory demands for certain emission standards (B - 34), and these regulations specify the type of equipment to be used, and the types of measurement and analysis to be done (B - 35). An identified challenge, confirming the centrality of regulatory pressure, is that firm B executives want to be aware of upcoming regulatory changes but do not want to waste time on less relevant issues that are not receiving government attention at the present time (B - 36). The focus is on compliance and anticipating future regulatory expectations.

Economic and Liability Pressures

Firm B spends huge amounts of money on environmental projects. For example, a nitrogen oxide emissions reduction project cost of ten million dollars, with "no return for us, it's just that we shouldn't be emitting it" (B - 37). At the same time, operators believe the firm maintains a business orientation at all times (B - 38). A balance is sought between environmental benefit and economic cost (B -39, B - 40), and employees identify non-economic benefit as somewhat offsetting cost factors. Environmental improvement is seen as making the production process more efficient (B - 41), and cost efficient production is important to firm B (B - 42). Firm B executives see their success being measured partly in relation to other facilities in the corporate B family, and sites that are unattractive environmentally, economically, or socially are not considered by head office for expansion (B - 43). A facility that can reduce incidents and waste also reduces costs, and this process improvement can lead to greater awareness and opportunities in the broader business context (B - 44). Cost efficient improvements are seen as increasingly difficult to achieve because many of the "best" projects have already been done (B - 45).

A related economic pressures follows from the increasing awareness of bankers who are now concerned with community impact assessment and protection of the environment, whereas ten years ago the consideration for loans was more strictly economic (B - 46 & 47). Any potential liability caused by a change in regulations or greater technological knowledge translates into increased difficulty in getting loans, and could halt business expansion (B - 48). The banking institutions have become nervous and so firms are again constrained to be environmentally conscious, creating a competitive advantage as well as compliance.

Internal Pressures

Chemical firms generally have a negative public image and this is partly because of their historical performance (B - 49). Previous bad behavior still influences public perception and consequently government action regarding the regulation of chemicals (B - 50 & 51). The manufacturing of chemicals is seen as a dangerous undertaking, regardless of safeguards in place.

Personal values of the employees influence firm B's behavior (B - 52). Operator ability to achieve firm environmental standards has become a part of their job description (B - 53). Operators believe that management is committed to environmental improvement, but also appreciate that the firm needs money and improved technology to achieve these goals (B - 54).

The firm competes internally with other firm B facilities for head-office funding, and because environmental performance is one measure , and this exerts pressure on the firm (B - 55). Headquarters controls the financial capability of the firm B facility, and all major projects including environmental projects require headquarters approval (B - 56).

International and Other Firm Pressures

Firm B operators and executives believe that incidents by any firm anywhere in the world impacts the public's perception of firm B's local facility (B - 57 & 58). Bhophal, as an example, or the use of Agent Orange in Viet Nam (RN-48), influence the public's current perception of firm B or any chemical firm (B - 59). On the plus side, information and technical knowledge from the United States (B - 60), or Europe (B - 61), or elsewhere is available to firm B, and this improves performance without the negative experiences of other facilities.

International standards affect all firms uniformly (B - 62). Operators believe that the achievement of excellent environmental behavior in any area by any chemical firm should set the new standard for all firms (B - 63).

Part Two: INTERPRETATION OF PRESSURES

Interpretation of Community Pressures

Public opinion of chemical firms is believed to be very negative (B - 64), and this despite firm B executive conviction that industry practice is superior to public behavior (B - 65). The public is seen as ignorant and irresponsible regarding their own role in environmental degradation and pollution (B - 66 & 67). The public is acknowledged as being very powerful, but is seen as scientifically illiterate (B - 68) and becoming more so (B - 69). The public influences government action and reaction (B - 70), but this concern from the public may be emotional and misinformed, and therefore unfair (B - 71 & 72). The public does not understand how chemical firms operate (B - 73 & 74). Further, the public does not differentiate between the different firms (B - 75), and firm B feels they would get more credit if the public was better informed and could make this distinction (B - 76). The public needs to become educated (B - 77) and to understand the ecological and environmental issues and trade-offs facing society (B - 78 & 79).

Firm B executives believe that community support is necessary for industry survival (B - 80), and struggles to achieve this support through a variety of corporation and community interaction measures. The firm regularly schedules open houses, even though these are usually poorly attended (B - 81 & 82). Firm B executives consider that they work very hard to communicate with the public, but with mediocre results (B - 83). Operators are on-call twenty-four hours a day to deal with community concerns (B - 84), and school visits and public meetings are held asking for input (B - 85). The public is welcome to visit the facility (B - 86). Prior to the start-up of their new facility, the firm was aware this start-up would involve noise and flaring, and informed the public that this would happen. There were still many complaints about this flaring and noise (B - 87, 88, & 89), but the firm was proud that it had consulted and visited the community prior to the start up (B - 90 & 91), and without the government demanding these visits (B - 92 & 93). Some members of the community are relatively well informed about firm behavior, because many operators live in the community (B - 94 & 95).

A Community Advisory Panel has been set up to deal with community concerns (B - 96 & 97), and this body sets its own agenda and raises it's own issues (B - 98), but executives feel no real confidence that the CAP is effective. Community meetings are held to explain corporate policy and behavior, but few members of the community show up and are generally quite passive (B - 99). One operator stated that community members showing up was less important than the knowledge they could show up if they wanted to (B - 100). Public concern should more accurately be described as local community concern (B -101), and one mission of the firm is to satisfy the local community (B - 102). The community is believed to be more trusting of a local firm than of firms in general (B - 103). The firm also faces the problem of trying to inform the community about risk and liability issues but without upsetting the community in doing so (B - 104). Some executives feel that public opinion is often determined by product rather than process, and so undeserving firms like Ontario Hydro are considered positively because their product is clean even through their environmental performance in creating the product in the first place is terrible (B - 105 & 106).

Public relations is considered important for firm B, and even participation of executives in public forums is seen as beneficial for the firm (B - 107). Public relations is the responsibility of all employees, and many executives are taking courses to become more proficient in the public-relations function (B - 108). Executives are aware that the old "Trust Us" motto is unacceptable today (B - 109), and even though economic questions dominate public concern, the environmental standards that are in place are not about to fade, so there is no return to "the good old days" (B - 110).

Some community response is seen as a nuisance, but is still necessary (B - 111). As well, because of the emotional nature of some community members, the best technical solution from firm B's point of view may not be usable because of public unease (B - 112). The public's fear can drive firm behavior. Firm executives believe the public is prepared to trade-off environmental benefit for economic benefit (B - 113). The next major improvement in environmental behavior for society must be made in cooperation with the public (B - 114), and any long-term and effective environmental improvement requires public support (B - 115). Several employees feel that the firm has gone as far as it can, and change by the public and community is the next required step.

Executives believe the media and activists are confrontational. The media is seen as unfair, sensational, and simplistic because they present complex stories in black and white ways (B - 116 & 117). Media and activist attention can influence government however, particularly if the firm stonewalls after issues are raised (B - 118).

Firm B operators and executives are frustrated by the public's inability to distinguish between firms with good behavior and firms with bad behavior. Perception is often not fair, as for example, steam from some stacks is only water vapor but looks like and is perceived as pollution (B - 119). The public sees all firms as being the same (B - 120), and so poor performance by any firm impacts firm B as well (B - 121). Good performers are not given credit for their good performance (B - 122). Although public perception is seen as important for all firms (B -123), firm B takes the aspect of firm performance so seriously that they recently hired even more staff to the public relations function, and use public relations staff in all phases of projects (B - 124). Firm B executives believe there is a low correlation between real behavior and perceived behavior for most firms (B - 125), and that good environmental performance is pointless, at least from a public relations perspective, unless the public is aware of this behavior (B - 126). Firm B advertises and promotes it's environmental behavior both locally and internationally, and believes that all other plants should do the same (B - 127).

Firm B executives and operators claim they want to be a model of corporate responsibility (B - 128). Influencing public opinion is important, but less so than real performance (B - 129). At the same time however, real performance enhances and makes public relations activities easier (B - 130), and improves firm B's chances for community acceptance (B - 131). Firm employees are aware that they must be proactive to get the firm's message out to the public (B - 132). Still, much behavior is strictly public relations, such as committee work (B - 133), or the wildlife park next to the plant (RN-49)(B - 134). All staff is expected to cooperate in the public relations function (B - 135), and management even takes classes to improve their public relations abilities (B - 136). The public relations budget was not cut, even in recent economically tough years for the firm (B - 137).

Protecting the environment is part of doing business and staying in business (B - 138). Unwise environmental behavior combined with bad public perception can cost a firm millions of dollars, as with Dow's 180 million dollar settlement regarding Agent Orange (B - 139). Public perception drives firm behavior because of the public's influence on government (B - 140).

Interpretation of Government Pressures

Both operators and executives suggest that environmental behavior in firm B is undertaken to keep government from interfering with corporate management (B - 141 & 142). A well run operation creates credibility with the government (B - 143). The pressures from government are not expected to lighten regarding environmental behavior (B - 144 & 145), and to keep in touch with pending regulatory changes the government is monitored closely (B - 146). The firm attends many meetings and conferences and is on many environmental mailing lists (B - 147). The government now asks for firm input regarding pending regulation (B - 148) and this attempt at consultation is appreciated (B - 149). Firm executives interpret this to mean the firm "wants to be in business and they (the government) want to be in charge", and so cooperation is required (B - 150), and this searching for firm and community input by the government is seen in a very positive light (B - 151). The government should listen to the firm because of the firm's experience, skill, and knowledge about both it's own product and the firm's awareness of its impact on the community (B - 152). Lobbying the government is seen as generally ineffective (B - 153), but at the same time the government is willing to negotiate standards and regulations, although different government departments operate in different ways (B - 154). Any negotiating with government is risky because also political (B - 155).

Reporting standards and expectations from the government are more strict than they used to be (B - 156), but this reporting is seen as fairly routine work and so basically part of regular operation (B - 157). Governments and regulations do change, often overnight, and this is understood as regrettable because this allows the enforcement of environmental standards to become political (B - 158). Government action is often punishment oriented and is detrimental to overall environmental benefit (B - 159). Government claims to want a balance between the environment and the economy, but one executive felt the government is more interested in development and growth than any environmental agenda (B - 160 & 161), and the firm is in agreement with this imbalance. Also, government is seen by one operator as weak and unable to prosecute anyone successfully (B - 162), and would likely back off if industry presented a united front (B - 163). Different departments and levels of government also have different agendas (B - 164). Occasionally the municipal government serves as a buffer between the firm and the Provincial regulators (B - 165).

Interpretation of Regulation

Firm B makes efforts to exceed regulation and the Responsible Care guidelines about responsible environmental behavior (B - 166). The firm does not cut corners or take risks in meeting regulation (B - 167), and works toward achieving a cushion of behavior so that regulation can always be met even if minor problems occur (B - 168 & 169). Firm B has established standards that other firms are now forced to copy or keep up with (B - 170), and some executives believe, as did the operators noted earlier, that best behavior in any firm should become the industry behavior standard (B - 171). Some operators believe that regulation should be tightened even more (B - 172), and this tightening is accepted as very probable (B - 173).

Regulation is understood to follow from public outcry (B - 174), pushed by community awareness and concern (B - 175). Because of negative public opinion about chemical firms, self-regulation being allowed by government or communities is seen as very unlikely (B - 176). Regulation is part of on-going facility management, something that simply has to be done, and efforts are made to influence regulation as it is being set, and this cooperation with the government is actively sought (B - 177 & 178). Once proposed regulation becomes law, the firm actively tries to influence how the regulations are interpreted by both firms and regulators (B - 179 & 180).

Two benefits of regulation were mentioned by firm executives. Regulation is seen as establishing a level playing field for all firms (B - 181), but also because of strict reporting standards establishes benchmarks for analysis and comparison between firms, and so helps set objectives and schedules for reduction of emissions, and other environmental performance measures (B - 182). This is one reason why firm B publishes an annual environmental progress report (B - 183). Regardless of all the pro-environmental posturing, one operator felt that the firm would do little unless regulation was in place to force compliance (B - 184).

Several negatives about regulation were also mentioned by operators and executives at firm B. Some operators believe regulation is excessive and not useful (B - 185), and regulatory enforcement is seen as expensive for both the government and the firm (B - 186). Executives also believe that regulation causes extra expense, as they claim that these behaviors would have happened anyway in more cost efficient ways (B - 187). Executives believe that regulation makes any behavior more expensive and time consuming, and likely gets in the way of further improvements as energies are spent complying with existing regulation instead of spending that same energy to find superior ways of improving the environment (B - 188). Compliance expense may put some firms under (B - 189). The facilities in the United States have more compliance staff because the United States has more regulation (B - 190), and this is worrisome to firm B executives because Canada is believed to copy regulation from the United States (B - 191). One final worry, given the power the regulators have over the firm, executives believe that these government employees should be very knowledgeable about the firm, but feel this is not the case (B - 192).

Interpretation of Economic Pressures

Achieving excellent environmental behavior can be very expensive. A nitrogen oxide emission reduction program, for example, cost firm B about ten million dollars in 1995 and 1996 (B -193). Clean-up of previous poor performance is very expensive for some firms (B - 194), and the fear of some executives is that spending too much on environmental behavior can lead to a loss of international competitive advantage (B - 195). Any environmental behavior at firm B is balanced against the cost, and sometimes the benefits seem very uncertain, especially in the short-term (B - 196 & 197). Large and expensive programs are controlled by head office (B - 198), but most environmental programs have been spared from cuts even in hard economic times (B - 199).

Good environmental practice can sometimes save money for the firm, and this payback is constantly searched for (B - 200 & 201). The firm strives for efficiency in all programs (B - 202), and payback is believed possible even from some regulated environmental changes (B - 203). The firm B focus on high value opportunities driven by competitive standards and financial prioritizing does lead to trade-offs however, and as low value opportunities are dropped some standards could decline (B - 204). A simple example of efficiency is offered by an operator who suggests that reduction of waste results in a lower cost in disposing or dealing with waste, and so efficient behavior that benefits the environment also leads to long-term economic viability (B - 205).

These efficiencies are often lead by technological ability, which is considered to be much superior than in past years (B - 206). The procedures and processes have improved as the operation has become more efficient (B - 207), and the proof is that the newly opened facility can produce significantly more product but with lower total emissions and waste (B - 208). This increased efficiency also reduces liability, offsetting the perceived increased liability as regulation gets tougher and broader (B - 209), and bankers and other lenders become more and more nervous about their own contingent liabilities (B - 210).

The financial pressure has been interpreted as an opportunity instead of just a cost. Good environmental behavior can lead to increased productivity (B - 211) and indeed to long-term corporate health (B - 212). All environmental behavior has a payback, even if not financial (B - 213), as the process itself raises consciousness and therefore opens different doors to the problem solving dilemma next time around (B - 214).

Interpretation of Internal Pressures

The history of environmental concern in the chemical industry is perceived as being very poor by firm B employees. Operators claim knowledge of previous cover-up of spills and minor incidents at firm B, although it is claimed this would not happen now (B - 115). Comment is made that now there is no margin for error, suggesting that previously there may have been. The industry is portrayed as having ignored environmental problems for decades, and is now playing catch-up. Some employees doubt that catch-up is possible (B - 116 & 117). Some employees are not willing participants in environmental reporting procedures, considering them lengthy and irrelevant (B - 118). More seriously, it is suggested that when large improvements or changes are planned for future implementation in firm B, that little is done in the interim even through improvements to current practice could still be achieved (B - 119).

The "good old days, if they ever existed" in the chemical industry are history, and the behaviors and standards of these times are no longer tolerated by the community or by government (B - 220). The environment is becoming a more important issue for the chemical industry all the time (B - 221), and this demands a longer term perspective on all behaviors and standards (B - 222). The government and the community are monitored to keep the firm informed of future expectations (B - 223), and even expectations and regulations in other jurisdictions such as Texas are known to some workers (B - 224). Exceptional environmental behavior becomes only adequate behavior over time (B - 225), and the environmental impact of any behavior is now considered before the behavior is undertaken (B - 226). Good environmental behavior is considered to show corporate social responsibility (B - 227 & 228), and some executives claim this good environmental behavior will be supported more and more as younger and more environmentally aware management matures in the firm (B - 229).

One cynical operator suggests that firm B does "the right thing" if they want to "do the right thing", otherwise it might not happen (B - 230). Further, that any major changes or philosophical statements are essentially sent down to the facility from the head office in Texas (B - 231). Despite this, firm B does exhibit many behaviors that support their claim of social responsibility including their environmental progress report, a voluntary initiative which demonstrates firm values about openness (B - 232). The buy-out of residential homes close to the plant facility is presented as not mandated but simply the right thing to do (B - 233). Good behavior is presented as the ethical and moral choice (B - 234 & 235).

Good behavior has paybacks, and not all paybacks need be economic (B - 236 & 237). For example, the firm learns from it's own history (B - 238), and a payback may be organizational learning through process change, or even operator attitude change through perception of firm behavior. Employees are believed to act out the firm's culture (B - 239 & 240), and explains in part executive support of long-term perspectives on standards (B - 241). Pragmatically, good environmental behavior is expected to lead to lower costs, happier employees and community, and more trust from government (B - 242). Firm B, because of it's sheer size and international structure, would like to be seen as a model leader for good environmental behavior in the chemical industry (B - 243).

Firm B executives prefer to be driven by science and not emotion (B - 244), yet are unsure about the ultimate benefit of much mandated environmental behavior (B - 245). This benefit is in question partly because changes in performance results are sometimes subtle and slow and are difficult to monitor (B - 246).

Environmental behavior is clearly related to health and safety behavior in firm B and is often seen as a subset of safety (B - 247). Environmental concerns are taken as seriously as are safety concerns (B - 248). Operators are expected to follow the safety, health and environment manuals, even over demands for alternative behavior from supervisors (B - 249 & 250). These firm B standards and manuals are considered strict by operators, and the firm demands operator compliance (B - 251). Firm B reports absolutely everything to the regulators, regardless of how minor (B - 252 & 253), and this is done mostly through the Environmental Services Department (B - 254).

Firm B has set-up an internal structure that makes all product units responsible for their own product regardless of where it is, including in-transit or on site, and this includes all reporting and clean-up (B - 255). These same business units, across the whole corporation in many different facilities, are also the units that approve environmental upgrading or environmental projects for the specific product (B - 256 & 257). Local management has some degree of autonomy from the Board of Directors (B - 258) and this has resulted in similar facilities in different locations having different behaviors (B - 259).

Employees are part of the local community (B - 260 & 261), and firm B executives consider their employees to be part of the society that it is trying to satisfy (B - 262 & 263), and so want all employees to understand the firm's environmental policy and programs (B - 264). An abundance of information is available to operators if they want it (B - 265). The operators are expected to be aware of corporate attitudes, behaviors and plans (B - 266 & 267). Because operators are part of the community, they suffer from bad corporate behavior along with the rest of the community (B - 268). Firm B executives believe the strength of the firm is based on it's employees (B - 269). The core values of the firm are explained to the operators (B - 270), and operators are expected to agree with and live these core values. Operators must be happy with corporate performance (B - 271 & 272), particularly if they are expected to act as an ambassador and take information about this performance back to the community (B - 273, 274, & 275).

Operators are encouraged to contribute to the solving of environmental and behavioral problems in the firm (B - 276 & 277). Executives also believe that bad environmental behavior by the firm could only be caused by operators contravening environmental guidelines (B - 278). The firm treats it's staff well (B - 279), and hires most new staff straight from school and expect to do their own training (B - 280). Part of employee evaluation focuses on their knowledge of environmental guidelines and environmental behavior. Despite this concern by firm management, some employees are not interested in environmental matters (B - 281). Similarly, the Union is seen by some executives as being uninterested in environmental matters (B - 282).

Environmental behavior by firm B is not perfect (B - 283), or even as good as it could be, even though above regulatory standard (B - 284). The voluntary emissions statement (RN 3 - 3) is an industry leader however and will likely be copied by other firms (B - 285). Behavior that was considered adequate twenty-five years ago is no longer adequate (B - 286), as time changes the interpretation of firm behavior, both internal and external to the firm (B - 287).

Good environmental behavior is seen as a process or a state of being (B - 288), not a one-shot achievement on a specific project (B - 289). Firm executives believe that firm B "walks the talk" about environmental performance (B - 290), going so far as reporting inadequate behavior even though it puts them in a bad light (B - 291). Behavior will continue to improve as equipment improves, and this is partly because of gains in technology and knowledge (B - 292 & 293).

Interpretation of Pressures from Other Firms

Achieving competitive advantage was suggested as a possible benefit of good environmental behavior. By setting the standard, other firms are forced to comply with achievement already reached by firm B (B - 294). As an example, firm B is ahead of current regulation regarding accumulated waste because of prior use of an incinerator, and this means that the firm has no accumulated waste that has to be dealt with now, and at more stringent levels of control (B - 295). That is, the disposal of waste in prior years through use of an incinerator appears to make firm B appear progressive because they do not have accumulated waste to be dealt with now, even though the methods of that incineration would not likely meet environmental standards today. Questionable environmental behavior in past years can give the appearance of good behavior today. The firm does worry about appearing arrogant to the other firms (B - 296).

Firm B executives believe their firm is superior to most other firms in environmental behavior (B - 297). Other firms just "talk the talk" (B - 298), but with firm B's espoused history of concern, adoption of good environmental behavior is perhaps easier than for other firms (B - 299). Firm B believes that all firms should share environmental information as this helps the whole industry (B - 300), and there are organizations through which this sharing is possible (B - 301). Bad behavior by any firm in the industry also encourages regulation that could affect firm B (B - 302), and this even though perception of the industry is worse than just perception of firm B alone. Bringing all firms up the standard achieved by firm B is seen by firm B executives to be in the best interests of the industry and firm B as well (B - 303 & 304). This commitment to the industry by firm B is because of the belief that good firms are punished along with the bad (B - 305). A positive perception of the whole industry is needed by community and the government (B - 306).

The CCPA is seen as one means to achieve this industry upgrading. CCPA firms share common goals (B - 307), and through the Responsible Care guidelines have set an acceptable standard for all firms, including guidelines which are still a challenge for some firms (B - 308). Firm B was a founder of the CCPA (B - 309) and CCPA values are fully integrated into the firm B management system (B - 310). Though the CCPA environmental audits can be done (B - 311) and the industry leads government in this area at least with the National Emissions Release Inventory (RN-50)(B - 312).

Excellent behavior in Canada may be wasted unless international standards are established (B - 313 & 314). Even the money spent in Canada on environmental behavior would have more benefit in a global sense if spent in developing nations (B - 315), and this problem is only likely to get worse as global population continues to grow. Canada is seen as being more competitive than the USA (B - 316), and is ahead of many other countries as well (B - 317 & 318). Still, employees of firm B believe we need to change our thinking in North America to safeguard our environment (B - 319 & 320), and place less emphasis on competition at any cost.

Part Three: INDICATORS FOR FIRM B

ECONOMIC
COMPARATIVE EXPRESSED CONCERN -- FIRM B

	not mentioned	Low	Med	High
EFFICIENCY CONCERNS				
Efficiency (less waste) is also a lower liability	B			
Large projects cause stalling in small projects			B	
Firm wants efficiency in environmental spending			B	
Improvements become more expensive over time	B			
Being pro-active not that expensive	B			
Environmental projects usually don't show return			B	
Some behaviors very expensive but must be done	B			
LIABILITY CONCERNS				
Risk management because of liability awareness	B			
Economic analysis is only meaningful analysis	B			
Pressures from banks and insurance companies				B
Personal liability	B			
Liability is a future economic cost			B	
Environmental performance impacts economic performance			B	
Better systems give lower plant liability				B
Liability concerns is large driver of behavior			B	
COST AND CONSTRAINT CONCERNS				
Production is the number one priority	B			
Connection between large firms with big budgets and Env beh	B			
Firm must be efficient and make money, cost efficiency				B
Making money is the only motivator	B			
Financial cost of environmental behavior is huge				B
Must spend on environmental behavior or close down		B		
Open cheque book for environment	B			
Benefits from good E behavior more than economic			B	
Impacts stockholder confidence, financial constraints, budgets		B		
Aware of firm economic power in community	B			

GOVERNMENT COMPARATIVE EXPRESSED CONCERN -- FIRM B

POWER OF REGULATION

Regulation establishes level playing field	.	.	.B	.
Government controls timing of regulatory change	.	.	.B	.
Regulation is number one driver in short-term	.	.	.B	.
Regulation safeguards community and environment	.	.	.B	.
Regulation is expensive to firm and government, not needed	.	.	.	.B
Regulation will get tougher and broader, could shut you down	.	.	.B	.

MOTIVATION OF GOVERNMENT FOR REGULATION

Government afraid of public, responds. wants to look good	.	.	.B	.
Govt hands-off to environment, economic concerns	.	.	.B	.
Env awareness and tech knowledge drives govt	.B	.	.	.

FIRM DEALING WITH REGULATION

Continuous improvement, pro-active, create buffer	.	.	.	.B
Interpretation of regulation as important as regulation	.	.	.B	.
Govt negotiates on regulation, personal history and trust	.	.	.	.B
Report honestly, report everything	.	.	.B	.
Firm and government face the same pressures	.B	.	.	.
Worried about meeting current regulation, fines for violations	.	.B	.	.

GOVERNMENT COMPETENCE

Government ineffective and incompetent	.	.	.B	.
Industry could be self regulating, leads govt	.	.B	.	.
Regulation irrelevant, firms regulate themselves	.	.	.B	.

CUSTOMER COMPARATIVE EXPRESSED CONCERN -- FIRM B

CUSTOMER SATISFACTION

Customer is the number one stakeholder and driver	.B	.	.	.
Can win awards for customer satisfaction	.B	.	.	.
Need good environmental behavior for customer satisfaction.	.B	.	.	.

FIRM MUST EDUCATE CUSTOMER

Customer needs to be educated by firm	.B	.	.	.
Customer needs to understand firm position in Industry	.B	.	.	.
Help customer with safe product usage	.B	.	.	.

WHAT DO CUSTOMERS WANT

Customer may seek the lowest price	.B	.	.	.
Recognition for Environmental excellence a competitive edge	.	.	.B	.
Quality product and lower price is the real strength of the firm	.B	.	.	.

COMMUNITY
COMPARATIVE EXPRESSED CONCERNS -- FIRM B

POWER OF COMMUNITY

Need to be pro-active to get message out to community			B	
Need public on your side, public sets ultimate standard				B
Community can influence government				B
Try to keep the public satisfied, answer their concerns				B
Community is powerful and can punish firm				B

PUBLIC EXPECTATIONS, PASSIVITY

Public expectations are constantly increasing				B
Community concern is mostly health, safety and Economic			B	
Public is passive, ignorant, and doesn't care				B
Public is afraid, emotional. and concerns are personal				B

IMAGE AND PUBLIC RELATIONS

Firms have negative public image, seen as all the same				B
Firm must be a good neighbor, contribute to comm.			B	
Public relations function is critical				B
Concern about activists and media				B

PUBLIC BEHAVIOR AND INFORMATION

Community pollutes worse than the firm, firm safer than home			B	
Community learns from employees, employees parts of comm			B	
Firm learns from stakeholders, public not single entity	B			
Disasters anywhere in world raise public consciousness			B	

INTERNAL
COMPARATIVE EXPRESSED CONCERNS -- FIRM B

EMPLOYEES AND THE UNIONS

Concerns with the Unions		B		
Employee and peer pressures			B	
Pressures on employees from family and friends	B			
A satisfied employee is a happy employees				B
Firm disciplines workers for poor environmental performance			B	
Firm supplies an abundance of information for employee			B	
Firm has many long-term employees, many senior staff	B			

FIRM INTERNAL SYSTEMS, AUDITS

Firm audits safety, health and environmental behaviors			B	
Firm audits suppliers for safe environmental behaviors	B			
Much autonomy from head office			B	
Spending huge amounts of money sends a message				B
Responsibility includes timely behavior	B			
Internal systems hinder environmental improvement	B			
Firm has internal competition for environmental funds				B

VALUES, CULTURE, LEADERSHIP				
Vision statements, personal responsibility, firm values	.	.	.	B
Env awareness of senior executives, responsible culture	.	.	.	B
Have a longer term and more Env. focus than before	.	.	.	B
Responsible Care Program, CCPA standards	.	.	B	.
Firm a model for the Industry, performance pride	.	.	.	B
Number one priority health and safety, safer workplace	.	.	.	B
INTERNATIONAL AWARENESS				
International pressures and awareness	.	.	B	.
Firm has an awareness of international incidents	.	.	.	B
International pressures and standards affect firm practice	.	.	B	.
GOOD BEHAVIORS ALREADY ACHIEVED				
The best projects are already done, technological limits	.	.	.	B
Env. incidents can be contained, preventable accidents	.	.	B	.
Technology allows change and improvement	.	.	.	B
OTHER FIRMS				
Insecurity and inferiority complex about other firms	B	.	.	.
Help other firms with environmental advice and help	.	.	B	.
Best achievement by any firm should set new standard	.	.	.	B
Pressures from other firms, competitive advantage	.	.	B	.
More pressure on large firms because small firms lack $	.	B	.	.

Part Four: FINAL COMMENT FOR FIRM B

Firm B executives are convinced that the public sets the ultimate standards that the firm must achieve, partly because of it's ability to influence the government (and therefore regulation), but also because of the ability of the public to punish the firm economically. Firm B produces many consumer products, and this concern reflects this product focus. The firm tries to keep the public satisfied and to answer public concerns. Public expectations are perceived to be constantly increasing even though the public is seen as passive, ignorant, afraid, and emotional. Firm B believes that public opinion is often only personal opinion from a few individuals. Firm B believes that the chemical industry still has a very negative public image and that all firms are seen as the same, and so the public relations function is critical. The public relations function is also necessary because of media and activist concerns, which are seen as posing a threat to the firm unless handled diplomatically. Of all six firms, firm B expressed the most concern about the power of the community, public expectations, and image and public relations.

Firm B employees expressed more concern with culture and leadership issues than any of the other firms. Culture, leadership, and values reinforce good environmental behaviors. Firm B claims to live it's vision statements and firm values, which are also supported by a sense of personal responsibility. Senior executives are aware of environmental issues, and the firm B culture supports environmental responsibility. A long-term focus is seen as essential, especially if the firm is to achieve its goal of being a model for the industry. Having an awareness of international environmental incidents adds to this internal awareness. Executives explain that the best environmental behavior has already been achieved in firm B, and technological limits have been reached. Technology allows change and improvement in practice, and firm employees believe that exceptional behavior by any firm should set new standards that all firms should strive to achieve. Firm B was the only firm to mention facing internal competition for environmental funding, and this was identified as a large incentive for active and pro-active environmental behavior. Along with firm A, firm B has much autonomy from head office, yet must compete internally for environmental funding.

The third most serious concern for firm B is government and regulatory pressures. Along with firm A, firm B believes that regulation is expensive to the firm and to government, and mostly unnecessary. Alone among the firms, firm B believes that regulation creates a level playing field for all firms. Firm B also believes that government controls the timing of regulatory change, and that regulation does in fact safeguard the community and the environment.

Economic concerns were not identified as a major driver by firm B. One factor that was seen as important though was pressure from banks and insurance companies for pro-active behavior. This pressure was interpreted as the banks and insurance firms being concerned about their own liabilities because of their dealings with the chemical firms, and so demanded specific behaviors from the firms to safeguard bank and insurance firm interests. Another factor was the claim by some workers that firm B would mothball continuous improvement of processes when major projects became scheduled for change. With the announcement of large eminent change, small change would be ignored or canceled, and this was seen by some employees as displaying firm B's concern with image instead of environmental improvement. Superior systems of production and process were seen as creating lower liability in the facility.

No practical interest was expressed with customer satisfaction or in educating customers in correct use of firm B product even though the firm produces many consumer products. Mention was made that environmental excellence could be seen as a competitive edge, but this was not elaborated on to any length.

3.4 FIRM C - THE CASE

Respondents from firm C identify five major pressures that influence the environmental behavior of the firm. Community pressure and financial / liability pressure are seen as the major drivers for good environmental behavior. These are followed by concerns about the firm's customers, the government and regulation, and finally an awareness of the firm's history as an industry leader in health and safety, and now environmental behavior.

PRESSURES ON FIRM C

1. Community pressures
2. Economic and liability pressures
3. Customer pressures
4. Government pressures
5. Internal Values and History

Respondents identify shareholders, employees, customers and the community as the four major stakeholders of the firm, and believe that all four grow together (C - 1).

Part One: PRESSURES

Community Pressures

Respondents believe the community has enormous power, and is seen as powerful enough to close the facility. Simultaneously, the community is believed to be unsure about their perception of chemical firms (C - 2). Firm C executives feel that both the community and all of their own employees as well would be dissatisfied if the firm exhibited bad environmental behavior (C -3). Firm executives do not want to conduct business in an atmosphere of distrust and negative perception from community members or firm employees (C - 4). Some community members are seen as being informed and interested, and these community members have an influence on firm policy (C - 5). The environment is not believed to be a high priority for the community (C - 6). Well publicized incidents like Bhophal raises overall public consciousness, and so creates more pressures on government and the firm as well (C - 7 & 8).

Firm respondents are well aware of the public image of the chemical industry, and partly because of this makes efforts to buy locally and to assist in community development in an effort to put a local face on the multinational firm (C - 9). The firm contributes to Block Parents and other community groups (C - 10), and executives believe that the firm has a greater influence on the community than the community has on the firm (C - 11). Activists are not sitting on firm C's doorstep, and media is seen to have an influence on public opinion, and sometimes that attention is created by someone with "an ax to grind" (C - 12).

Economic Pressures

Firm C executives are aware of the consequences of bad behavior, and a Bhophal-type incident would be devastating to the firm. It is explained that it is bad business to be bad to the environment (C - 13). Operators feel that people will do "the right thing" if they know what the right thing is, and accordingly firm C has extensive training and education courses for all personnel (C - 14).

The economic and ecological tradeoff is forcefully presented by firm C executives. A profit is needed by the firm to allow behaviors aside from pure production. If there are no profits there will eventually be no stockholders and no firm (C - 15). Firm executives believe that this return from investment in firm C stock must be higher than guaranteed investments available from financial institutions (C - 16). Too much environmental behavior at too high a cost could bankrupt the firm, or at least cripple the firm by not allowing continuing dividends to investors, or any further expansion or other economic growth (C - 17).

Firm C is proud of it's culture of safety, and believes that safety pays. Respondents believe it is less expensive to solve problems now than later (C - 18). This efficiency argument continues as executives and operators explain that it makes economic sense to be environmentally wise (C - 19), if only because bad behavior leads to fines and massive clean-up costs. In the worst case, minor leaks caused by careless environmental emissions monitoring could cause devastating explosions and fires that could destroy the complete facility (C - 20). Good behavior lowers risk and potential risk and potential liability. The example was given that a $50,000.00 expense today could save the firm a one week shut-down later that would cost them one million dollars. The initial $50,000.00 cost could be viewed as insurance (C - 21). Customers want to deal with reputable firms and executives believe that a chemical reputable firm has low liability and enough stature and strength to be around in the future (C - 22). Finally, the members of the Board of Directors are aware of their personal liability for bad firm behavior (RN-51), and this is identified as a driver as well (C - 23).

Pressures from Customers

Executives at firm C discussed their competitive position relative to other chemical suppliers and explained this placement as a driver for firm C behavior. The firm will not make money if the customer isn't happy (C - 24), and the customer is recognized as the number one stakeholder in firm C, or at least as the first among equals (C - 25). The firm identifies four stakeholders and tries to satisfy all four thereby enhancing their relative position (C - 26). A negative public reaction to the firm because of bad behavior or some disastrous incident could cause huge financial and legitimacy damage, and the unmeasurable damage to Exxon caused by consumer displeasure because of the Valdez spill is offered as an example (C - 27). Some corporate customers refuse to do business with a firm that has a bad environmental reputation as they feel this may impact on their own image, or run counter to their own corporate mission statement of responsible behavior, or perhaps even cause them liability through use of poor product (C - 28). The competition is seen as becoming steadily better and so not only is continuous improvement needed, but the rate of improvement must be higher than other firms as well (C - 29).

Government Pressures

Firm respondents believe the government distinguishes between firms in the same industry, and depends on the firms to self-regulate themselves to the extent that the firms meet the regulatory standards that are set (C - 30). Differing behavior by different firms is expected, and the government demands cooperation and punishes uncooperative firms (C - 31). The regulatory standard is only the minimum standard and this is getting more stringent and so tougher to achieve (C - 32). Regulation increases steadily, and today's better than regulatory standard behavior will not be good enough in a few years time (C - 33).

Internal Pressures

Internal pressures for good environmental behavior are apparent at firm C. The industry has a bad history, so the firm believes that it needs both public perception of good behavior and actual good behavior (C - 34). Industry practice anywhere in the world affects the public's perception of the firm - so bad behavior anywhere in the world is a threat, especially since communication and information sharing is global now, and fast (C - 35). This works in both directions, as firm C's behavior at the Edmonton facility affects the image of firm C globally. Although firm behavior is certainly driven by economic pressures, there is also a component of leadership and corporate culture influencing behavior at firm C (C - 36). Behavior with economic payback is preferred, but some executives claim that behavior regarding the environment does not necessarily have to be directly economically beneficial to the firm (C - 37). The firm is influenced by the personal values of it's employees (C - 38), and employees have pride in the achievements of firm C (C - 39). There is pressure on operators to accept the norms and values of the firm (C - 40), and executives believe the vision and culture of firm C is well understood by all employees (C - 41). This culture starts with safety and care for "our people" and protection of "our environment" (C - 42). Firm C culture is summarized as wanting to "do-the-right-thing" (C - 43).

Part Two: INTERPRETATION OF PRESSURES

Interpretation of Community Pressures

Firm C employees are generally frustrated with their inability to communicate the corporate message to the community (C - 44). The community is seen as having a very negative image of the whole chemical industry, and the firm is serious about the effort it invests to build the trust of the community with the local facility (C - 45). The firm invests time and money to reduce it's overall impact on the community, and strives to have no impact whatsoever on the environment (C - 46). Employees of the firm try to treat the firm's neighbors just as they would like to be treated themselves (C - 47). The public is generally considered ignorant about which chemical firm does what, and so considers all firms as the same (C - 48).

Bad behavior in any firm in the area therefore negatively impacts firm C (C - 49). Despite the power that executives believe the community has, the community is apathetic, disinterested and unaware (C - 50). This creates a paradox of sorts, because the firm does not want interference from government or community in its operations and so an apathetic community serves that function. Yet the firm strives for communication with the community, which may raise community awareness, and therefore their concern, and therefore greater involvement in firm activities. The good works of the firm C are unappreciated by the community, but the lapses of the chemical industry are also often ignored. Firm C believes that both real improvements and an increased sense of responsibility by the firms are needed in the industry (C - 51).

Operators demand high standards from the firm (C - 52). Operators see themselves as part of the community, and so looking after the environment is a value added process because environmental benefits accrue to the individual operator as a member of the firm and also as a member of the community (C - 53). It is firm C policy that both operators and management interact on a personal level with the community, and this is perceived by respondents as trying to create a small firm image (C - 54). Informal communication by neighbors is seen as the most effective way of communicating with the community (C - 55). Many community members do not have faith in large firms (C - 56), but firm C executives hope that if they are open with the community the distrust will lessen regarding their specific facility (C - 57). The public is felt to be more comfortable with the firm C operation now than they were when it first opened (C - 58).

The community is generally believed to not be concerned about firm C in any way, including their environmental behavior (C - 59). The firm still makes efforts to establish rapport with the community, and claims that the community can affect firm policies (C - 60). A Community Advisory Panel has been established with another firm in the area (C - 61), and information is passed on to the community through this group (C - 62). Firm C makes quick response to known community concerns (C - 63 & 64), and tries to contribute to community life (C - 65).

Firm C executive believes the media in the vicinity of their facility to be essentially irrelevant. Media in the Edmonton region does not even claim to have a science / technology reporter, and are apparently not concerned about environmental matters. Even economic stories regarding the chemical industry receive little play in local papers (C - 66). Activists have lost influence and credibility in recent years (C - 67), but are seen as professional, even taking courses in public relations and management (C - 68). Because activists are hard to talk to and are perceived as sometimes representing no-one but themselves, and the media is irrelevant, firm C believes the best way to communicate with and educate the community is through a well educated employee group who takes the corporate message directly out into the community (C - 69).

Interpretation of Internal Pressures

Firm C has been the chemical industry leader in health and safety for about thirty years. This concern has been expanded and the firm executives now believe the firm to be the leader in environmental matters as well (C - 70), despite there being very little economic payback for many environmental initiatives (C - 71). Operators believe the firm to be the best in the industry, "the best you can get right now". The firm strives for zero spills, and this goal is seen as feasible (C - 72). Through it's own initiatives the firm leads the industry in new "safe" products (C - 73). Other firms may aspire to the achievements of firm C but "they just have trouble managing it", and this includes the management of safety (C - 74). Firm C executives believe that safety and environmental behavior is a cultural norm, and not a just a project that can be promoted in the short-term.

Firm C believes it sets the standard for the industry, for example with emissions testing (C - 75). Health and safety and environment are all considered outputs of the plant, just as any other product (C - 76). Firm C has voluntarily shut down operations to fix emission leaks and suggests that most other firms would not do this (C - 77). Firm C helps other firms with their environmental problems, particularly emergency response (C - 78), and this is seen as a priority responsibility (C - 79). Again, the implication is that other firms in the area would not be so free with their environmental staff or other resources. Operators believe that firm C has an open cheque book when it comes to safety, health, and environmental matters, with an identified problem being practically the same as a fixed problem (C - 80). This open cheque book belief of operators is different from earlier executive concerns about economic payback.

This industry leadership stance is supported by a culture present in firm C for generations (C - 81). These corporate values are strongly held (C - 82), and will not be compromised. Employees are proud of the name and reputation of firm C (C - 83 & 84), and believe the firm to be worthy of respect (C - 85). Firm C's missioning statement gets "fine tuned" periodically, and all employees are invited to have input into the revised statement (C - 86 & 87), and attempts are made to live this mission statement. A corporate story was offered about receiving a fine in 1993 in Ontario for a one liter spill that most firms likely would not have reported (C - 88). Employees are expected to learn the company mission through training and through doing the work in the expected way (C - 89).

Pride at firm C is simply accepted as a reality (C - 90). This is credited to leadership vision by some (C - 91), and if the firm did not have that vision the behavior would not be in place, "rightly or wrongly", regardless of what the employees would want (C - 92). This also relates to firm C taking a long-term perspective on their responsibility and an awareness that successful behavior today does not guarantee successful behavior in future years (C - 93). Employees expect this quality of behavior in health, safety and environment, and would consider leaving the firm if this attitude wasn't there (C - 94). Management has to allow all employees the opportunity to live out these values (C - 95).

Personal employee values are expected to be in agreement with firm values (C - 96). Some operators believe that new staff are hired partly based on the value system they profess (C - 97). One executive claimed that his personal mission statement would include working for a good corporate citizen, and that firm C was an excellent corporate citizen (C - 98). Respondents believe that firm C's behavior cannot be explained by only examining economic issues (C - 99).

Firm C's operation is dependent on it's operators and other employees. Operators are viewed as more mature and aware than in the past, voluntarily going "the extra mile" past government regulation (C - 100 & 101). Firm C attempts to move employees around the facility, job sharing operators with administrative work, and this is believed to create a workforce that is more aware of the whole running of the business (C - 102 & 103). This multi-tasking is seen as being a beneficial challenge by the operators (RN-52)(C - 104). Workers are encouraged to participate in process improvement (C - 105) and benefit from a profit share plan (C - 106). All employees receive much support through training and education programs (C - 107 & 108), and this is all explained by executives as trying to maximize the potential of each and every employee (C - 109). There is pressure on operators to work safely and environmentally consciously, and not to pump out the product regardless of consequences (C - 110). Production at firm C does not win out over safety (C - 111).

Interpretation of Economic Concerns

Concern with employee potential relates strongly to the belief that there is a strong connection between employee personal growth and corporate economic benefit (C - 112 & 113). Employee attitude and willingness to be involved with the firm's environmental culture translates into the corporation's bottom line (C - 114 & 115). Superior health and safety standards and achievements lead to economic benefit for the firm (C - 116).

Good behavior benefits all stakeholders (C - 117). This is in agreement with the firm concern for the community and the government's desire to control the environmental behavior of industry, and environmental consciousness is in keeping with a "better way to run your business" (C - 118). Accidents, for example, are seen as totally preventable, and this is stated as "accidents don't happen " (C - 119). Product, health and safety, and environmental behavior are all needed for success in today's business environment (C - 120). The firm strives to find a better way, and if "you don't continue to get better at what you're doing you're going to get worse" (C - 121). The firm strives to change process and behavior to achieve the "product" of good environmental behavior (C - 122 & 123). Good environmental behavior is seen as "a noble goal", and has the advantage in many cases of making economic sense as well (C - 124).

Profit is still needed by firm C (C - 125), and too much environmental expense could lead to bankruptcy (C - 126). Although the firm is seen by operators as having an open cheque book on health, safety, and environmental matters, much environmental behavior is seen as strictly cost (C - 127). Quality work is believed to save time, money, and effort for the firm (C - 128) and lowers risk and potential liability as well (C - 129). Firm C has plants worldwide, and an incident at any one of them impacts the operation of the facility in Alberta (C - 130).

Interpretation of Customer Pressure

Good environmental behavior is seen as part of customer satisfaction (C - 131), particularly with large corporate clients who demand correct environmental performance from all their suppliers (C - 132). Firm C assists their customers to use firm C product effectively, and even assists in marketing customer's products (C - 133). Firm C wants to work well with it's customers (C - 134), and assists them in becoming more environmentally friendly (C - 135). The education of customers is mostly done through the marketing department (C - 136). Most customers are believed to be more concerned with the impact of firm C's products on their operations than with any real interest in firm C's environmental behavior (C - 137). Similarly, operators expressed the opinion that firm C was more interested in customer product satisfaction than in the environmentally safe use of these products (C - 138).

Cooperation with customers leads to cost efficiencies for both firm C and the customer. The example offered is the unloading of rail cars in a timely manner by the customer in exchange for a discounted price, and this has enabled firm C to cut the size of its rail delivery system resulting in substantial savings to the firm and lower prices to customers (RN-53)(C - 139). Firm C identifies four elements of it's product: cost, quality, effectiveness, and use (C - 140), and firm C works with it's customers to achieve satisfaction on all four elements. Many customers still search out the least expensive product, ignoring the other three factors (C - 141).

Interpretation of Government Pressures

Firm C goes past regulatory requirements (C - 142) and operators believe the firm is doing all it possibly can to achieve environmental excellence (C - 143). The firm has an open door policy for all regulators (C - 144) and claims honest reporting even though this reporting is occasionally damaging to the firm's reputation (C - 145). Firm C believes that the industry is leading the government in identifying opportunities for improved environmental behavior, particularly in times of government staffing cutbacks (C - 146). The Federal and Provincial governments are seen as cooperative (C - 147). Regulation does serve as a double-check on firm behavior (C - 148), but the firm worries that recent regulation is being driven by emotion and not "practical reality" (C - 149). Firm C executives believe that excessive regulation will push bad behavior underground in some firms, that is, marginal firms will not report honestly or behave responsibly if too much environmental behavior and cost is forced upon them (C - 150).

Part Three: INDICATORS FOR FIRM C

ECONOMIC
COMPARATIVE EXPRESSED CONCERN

	not mentioned	Low	Med	High
EFFICIENCY CONCERNS				
Efficiency (less waste) is also a lower liability	C			
Large projects cause stalling in small projects	C			
Firm wants efficiency in environmental spending	C			
Improvements become more expensive over time				C
Being pro-active not that expensive	C			
Environmental projects usually don't show return			C	
Some behaviors very expensive but must be done		C		
LIABILITY CONCERNS				
Risk management because of liability awareness		C		
Economic analysis is only meaningful analysis		C		
Pressures from banks and insurance companies	C			
Personal liability			C	
Liability is a future economic cost				C
Environmental performance impacts economic performance				C
Better systems give lower plant liability	C			
Liability concerns is large driver of behavior			C	
COST AND CONSTRAINT CONCERNS				
Production is the number one priority		C		
Connection between large firms with big budgets and Env beh	C			
Firm must be efficient and make money, cost efficiency				C
Making money is the only motivator		C		
Financial cost of environmental behavior is huge			C	
Must spend on environmental behavior or close down			C	
Open cheque book for environment				C
Benefits from good E behavior more than economic			C	
Impacts stockholder confidence, financial constraints, budgets			C	
Aware of firm economic power in community	C			

GOVERNMENT COMPARATIVE EXPRESSED CONCERN

POWER OF REGULATION				
Regulation establishes level playing field	.C	.	.	.
Government controls timing of regulatory change	.C	.	.	.
Regulation is number one driver in short-term	.C	.	.	.
Regulation safeguards community and environment	.	.	.C	.
Regulation is expensive to firm and government, not needed	.	.C	.	.
Regulation will get tougher and broader, could shut you down	.	.	.C	.
MOTIVATION OF GOVERNMENT FOR REGULATION				
Government afraid of public, responds. wants to look good	.	.	.C	.
Govt hands-off to environment, economic concerns	.C	.	.	.
Env awareness and tech knowledge drives govt	.C	.	.	.
FIRM DEALING WITH REGULATION				
Continuous improvement, pro-active, create buffer	.	.C	.	.
Interpretation of regulation as important as regulation	.C	.	.	.
Govt negotiates on regulation, personal history and trust	.	.	.C	.
Report honestly, report everything	.	.	.	.C
Firm and government face the same pressures	.C	.	.	.
Worried about meeting current regulation, fines for violations	.	.C	.	.
GOVERNMENT COMPETENCE				
Government ineffective and incompetent	.C	.	.	.
Industry could be self regulating, leads govt	.	.	.C	.
Regulation irrelevant, firms regulate themselves	.	.	.	.C

CUSTOMER COMPARATIVE EXPRESSED CONCERN

CUSTOMER SATISFACTION				
Customer is the number one stakeholder and driver	.	.	.	.C
Can win awards for customer satisfaction	.C	.	.	.
Need good environmental behavior for customer satisfaction.	.	.	.	.C
FIRM MUST EDUCATE CUSTOMER				
Customer needs to be educated by firm	.	.	.	.C
Customer needs to understand firm position in Industry	.	.	.	.C
Help customer with safe product usage	.	.	.	.C
WHAT DO CUSTOMERS WANT				
Customer may seek the lowest price	.	.	.C	.
Recognition for Environmental excellence a competitive edge	.	.	.	.C
Quality product and lower price is the real strength of the firm	.	.	.C	.

COMMUNITY
COMPARATIVE EXPRESSED CONCERNS

POWER OF COMMUNITY

Need to be pro-active to get message out to community				C
Need public on your side, public sets ultimate standard			C	
Community can influence government			C	
Try to keep the public satisfied, answer their concerns			C	
Community is powerful and can punish firm				C

PUBLIC EXPECTATIONS, PASSIVITY

Public expectations are constantly increasing			C	
Community concern is mostly health, safety and Economic	C			
Public is passive, ignorant, and doesn't care			C	
Public is afraid, emotional. and concerns are personal		C		

IMAGE AND PUBLIC RELATIONS

Firms have negative public image, seen as all the same			C	
Firm must be a good neighbor, contribute to comm.				C
Public relations function is critical		C		
Concern about activists and media		C		

PUBLIC BEHAVIOR AND INFORMATION

Community pollutes worse than the firm, firm safer than home	C			
Community learns from employees, employees parts of comm				C
Firm learns from stakeholders, public not single entity	C			C
Disasters anywhere in world raise public consciousness				

INTERNAL
COMPARATIVE EXPRESSED CONCERNS

EMPLOYEES AND THE UNIONS

Concerns with the Unions	C			
Employee and peer pressures				C
Pressures on employees from family and friends	C			
A satisfied employee is a happy employees				C
Firm disciplines workers for poor environmental performance.	C			
Firm supplies an abundance of information for employee		C		
Firm has many long-term employees, many senior staff	C			

FIRM INTERNAL SYSTEMS, AUDITS

Firm audits safety, health and environmental behaviors	C			
Firm audits suppliers for safe environmental behaviors	C			
Much autonomy from head office	C			
Spending huge amounts of money sends a message				C
Responsibility includes timely behavior	C			
Internal systems hinder environmental improvement	C			
Firm has internal competition for environmental funds		C		

VALUES, CULTURE, LEADERSHIP				
Vision statements, personal responsibility, firm values				C
Env awareness of senior executives, responsible culture				C
Have a longer term and more Env. focus than before	C			
Responsible Care Program, CCPA standards		C		
Firm a model for the Industry, performance pride				C
Number one priority health and safety, safer workplace				C
INTERNATIONAL AWARENESS				
International pressures and awareness			C	
Firm has an awareness of international incidents			C	
International pressures and standards affect firm practice			C	
GOOD BEHAVIORS ALREADY ACHIEVED				
The best projects are already done, technological limits	C			
Env. incidents can be contained, preventable accidents				C
Technology allows change and improvement	C			
OTHER FIRMS				
Insecurity and inferiority complex about other firms	C			
Help other firms with environmental advice and help			C	
Best achievement by any firm should set new standard			C	
Pressures from other firms, competitive advantage		C		
More pressure on large firms because small firms lack $			C	

Part Four: FINAL COMMENT FOR FIRM C

The major focus of firm C is to satisfy it's customers. Of the six firms, firm C expresses the most concern about customer satisfaction, customer demands, and even an expressed belief in educating the customer than did any other firm. Firms C and E both expressed high concerns with most of these factors. Economic concerns, government and regulatory concerns, community concerns and internal concerns all ranked far behind customer concerns for firm C.

Firm C respondents expressed high or medium concern with eleven of the seventeen indicators of community concern. Firm C believes that the community is powerful and can punish the firm and so believes they need to be pro-active to get their environmental message out to the community. Because the public influences the government, the firm must satisfy the demands of the public. Firm C, alone among the six firms, expressed high belief that the community learns from the employees of firm C, in part because employees are part of the community. This is in keeping with the belief that the firm is a member of the community as well, and so have a responsibility to make positive contributions to the community. Despite this healthy respect for the power of the community, and also the belief that public expectations are constantly increasing and becoming more stringent, some firm C respondents believe that the public is ignorant, passive, and does not care about firm behavior.

Firm C respondents, in a manner similar to firms A and B, expressed strong belief in the power of their own culture and leadership in driving correct environmental behavior. Four of six indicators in the Values / Culture / Leadership category were ranked as a high concern by firm C. In contrast to the strong concern shown in that category, the internal systems and audit category was essentially ignored by firm C as a topic of concern, except for the expressed belief that spending large amounts of money sent a message to the community and others that the firm takes it's environmental behavior seriously. Environmental audits, or health and safety audits, or audits of customer behavior were not mentioned as a concern of the firm. Firm C, alone among the other firms, expressed the belief that environmental accidents can be contained, and that accidents are preventable. Firm C also believes that the firms should share environmental knowledge, and helps other firms with advice and assistance to achieve good environmental practice. International awareness was a concern for firm C on all three indicators and firm executives believe that international pressures and standards affect firm practice.

As did all firms, firm C believes the firm must be efficient and make money, and makes every attempt to achieve cost efficiency. Firm C was the only firm whose employees claimed that the firm had an open cheque book for environmental behaviors. High concern was also expressed in liability being a future economic cost, and that environmental performance impacts economic performance. Personal liability of managers and Board members was also mentioned as a concern. Firm C executives believe in timely environmental behavior as they believe that environmental improvements tend to become more expensive the longer they are left.

Government and regulatory concerns were of minor concern to respondents of firm C. Both firms C and E believe that regulation is essentially irrelevant, and that the firms are able and should regulate themselves. Firm C executives believe that industry leads the government in knowledge and assists government in establishing regulation, and this proves that industry could be self regulating. Firm C expressed very little concern relative to the other firms about creating a buffer between their behavior and regulation, given that their behavior is far past any regulatory requirement.

3.5 FIRM D - THE CASE

Respondents from firm D considers economic and risk - liability factors as the most serious determinant of its corporate environmental behavior. Government and regulatory influences are seen as major influences as well. Respondents suggest personal values and other internal pressures also influence corporate behavior at the firm, as do community and media expectations.

Pressures Identified in Firm D
1. Economic and Liability
2. Government
3. Internal Values
4. Community

Part One: PRESSURES

Economic and Liability Pressures

Identified economic considerations by firm D respondents are found in three related categories: economic and cost, risk and liability, and investor considerations.

A priority of firm D management is making an economic return for its stockholders, regardless of the spending that is undertaken to support environmental behavior (D - 1). This is seen in the concern given by corporation head office to economic capability, and the setting of facility budgets by head office (D - 2 & 3). These head office budgets are taken as given by facility management, and are followed closely (D - 4). The balancing of environmental behavior with economic considerations is a serious task mentioned often by corporate executives (D - 5). Efficiency in facility process is seen as one means of improving environmental behavior while creating improved overall performance for the firm (D - 6 & 7). Environmental behavior is viewed as compulsory and necessary for firm survival regardless of economic return, and so any economic return at all, or even a break-even cost-benefit, is seen as a bonus (D - 8).

Firm D spends much of its environmental budget attempting to reduce current and potential liability (D - 9). The firm would like to have no liability at all either current or potential, resulting in above regulatory standard being achieved to reduce future problems which could be caused by behavior being only adequate today (D - 10 & 11). Respondents in firm D are very aware of potential liability, and also of changing regulatory demands from government (D - 12 & 13). This determination of what current behavior may constitute future risk or liability is a major driver for environmental behavior. Liability issues and the potential economic cost of bad environmental behavior is a huge issue (D - 14). To be clear, performance at today's standard may require clean-up tomorrow because the standard is always changing, and so the prudent manager creates a positive buffer between performance and regulatory expectations.

Investor confidence in the firm is considered to be highly correlated with the firm having low liability risk (D - 15). Bankers and other financial institutions are believed to have concern about environmental performance, and this affects corporate financial ability (D - 16). The investors must be taken care of (D - 17), and good environmental behavior is required to insure long-term corporate survival through investor satisfaction and capital financial capability.

Government and Regulatory Pressures

Government regulatory forces are seen by many firm D employees as the largest influence on corporate environmental behavior (D - 18 & 19). This perception is shared by some corporate executives as well, with one claiming that government demand was the only driver on the firm for environmental performance (D - 20). The corporation makes every effort to stay ahead of regulatory and legislative changes (D - 21 & 22) and many regulatory demands are in the facility's operating license, allowing the government to cancel the license at any time for violation or non-compliance (D - 23). Regulation was mentioned as a pressure by all executives interviewed (D - 24), and this pressure is even more worrisome because executives believe the government perceives chemical firms as having "deep pockets" and so able to meet almost any regulatory requirement (D - 25). Environmental behavior at firm D can be seen as attempting to achieve environmental compliance in advance of more stringent levels of regulation (D - 26 & 27).

Some international standards such as ISO 9000 are a driver for improved environmental performance (D - 28). Regulatory requirements have a major competitive influence on corporate success. International competition is tough because much foreign production has lower environmental standards and therefore enjoys advantages created by the lower costs (D - 29). North American standards are seen as a barrier to competitive international trade.

Internal Pressures

Both peer pressure and personal values were identified by workers and executives at firm D as drivers for improved environmental performance.

Workers believe they watch out for each other in terms of correct environmental behavior, and this is identified as peer pressure (D - 30). Good behavior is demanded from all employees, and poor behavior by any individual operator may have repercussions because of stricter controls on all employees (D - 31). Internal pressures for responsible behavior on one another was also mentioned by executives (D - 32).

Influencing this peer pressure are the personal values and beliefs about environmental responsibility held by firm D employees. Personal values and expectations are offered as strong reasons for personal support of environmental endeavors (D - 33). The leadership of the firm is seen as influencing all employees to be more responsible, and the leadership style is seen as being more like a process of example and influence than the force of power and authority (D - 34 & 35). Firm D executives express the desire to have no influence whatsoever on the environment (D - 36 & 37), although these no-impact desires are often expressed as technological challenges more so than as a philosophical environmental "good" (D - 38 & 39).

Community Pressures

Economic and liability pressures, and government regulation, can be seen as non-social pressures. Personal values and peer pressure are concerned with technological and process concern more than a social concern. Concern about the community has a less direct and consequently more complex impact on firm behavior.

The community and the public is not seen as being a single entity speaking with a single voice and with uniform expectations about firm behavior (D - 40 & 41). These expectations are also seen as being perceptions and not necessarily related to what firm employees consider to be reality (D - 42), but this public perception must be dealt with (D - 43). A vocal minority of the community are environmental activists, but these groups are seen as both less powerful and more cooperative with the chemical firms than they once were (D - 44 & 45). The media is seen as having an influence on public awareness but is seen as presenting the chemical industry from a very emotional and non-fact perspective (D - 46 & 47). Regardless, public perception of bad environmental behavior leads to lost credibility in the community (D - 48), and so the firm keeps identified and understood constraints from the community in mind at all times.

Part Two: INTERPRETATION OF PRESSURES

Interpretation of Economic and Liability Issues

Firm D executives admit that not all environmental performance measures that could be taken are taken, even though regulatory standards are met all the time (D - 49). These "extra" behaviors are often held up or postponed because of budget constraints and firm D executives are frank that meeting budget figures are more important than achieving excellence in environmental performance (D - 50). Facility operators consider firm D to be a smaller firm, and are convinced that small firms cannot achieve the same environmental standards as larger firms (D - 51). This is partly because small firms are seen as having less manpower, capital, and technological ability to achieve environmental excellence, but also because the larger firms are believed to have more to lose and so are more willing to spend time and money to achieve higher standards (D - 52 & 53). One operator expected firm D to eventually chose the facility because of unwillingness to spend the required money to maintain increasingly harsh environmental standards (D - 54). Corporate executives shared this perception. Different firms in the chemical industry have different standards (D - 55), but government regulators expect similar behavior from all firms regardless of size or available resources, and this is seen as unfair (D - 56). The reality perceived by firm executives is that firm D simply cannot spend on environmental performance like the larger chemical firms (D - 57).

Time spent on environmental projects and concerns is seen by some executives as detracting from the real work regarding production by the firm (D - 58). The hiring of an environmental engineer was seen as a cost with little hope of recovery (D - 59). Hope is expressed that good environmental behavior may lead to some economic benefit (D - 60), but the money spent on environmental performance measures is mostly seen as reducing liability although not necessarily improving process or any other payback (D - 61). Workers are encouraged through gain-share to contribute to process efficiency, and this may lead to some environmental improvements (D - 62). Management expects to identify and correct all operator error and thereby improve environmental performance as well (D - 63). The facility has rigid controls on all operators for safety and environmental related behaviors (D - 64).

Firm D shares environmental performance information and monitoring of government changes with other firms. The environmental officer from firm D frequently visits other facilities in the area to compare knowledge and experience (D - 65). Bulletins are sent back and forth to neighboring firms to keep each other abreast of behavior or unusual occurrences such as flaring (D - 66), and operators share knowledge informally with operators from other plants all the time (D - 67). Training for certain health and safety training is available for firm D employees at other facilities in the area (D - 68). Firm D executives believe that liability can be reduced by participating in joint ventures with other firms regarding environmental performance (D - 69).

Despite this cooperation with competing firms regarding environmental behavior, production of product is the main focus for firm D (D - 70), and the pricing and quality of the competition must be met regardless of environmental behavior cost (D - 71). Foreign competition is viewed as being out-of-control regarding lack of proper environmental protection to workers or the community or the environment, but so very competitive on product price in part because of their environmental irresponsibility (D - 72).

Firm D spends money to reduce liability (D - 73), and an excellent example is their removal of underground storage tanks which were legal and at standard yet were perceived by management as posing a potential liability risk (D - 74). Firm D executives are very clear that a catastrophic accident of any sort would close their facility permanently, so all precautions must be taken (D - 75).

Customers are mentioned as an economic consideration for good environmental behavior. Customers expect quality products and expect the quality to be provided cost efficiently (D - 76). The expectation is expressed that some customers are environmentally aware and so do not choose product exclusively based on cost but consider other factors such as environmental behavior of the chemical producer as well (D - 77).

Interpretation of Government and Regulatory Pressures

Firm D respondents have very mixed feelings about government regulators and regulations. Regulation if too strong could bankrupt the firm (D - 78), so regulation is seen in part as a financial threat to the firm particularly if regulatory shifts are sudden or unexpected (D - 79 & 80). At the same time regulation is seen as fair but very strict (D - 81) because government is understood as having to maintain pressure on chemical firms for improved behavior (D - 82). This fairness is interpreted to be the government being reasonable in enforcement, by, for example, not "hammering" the firm for a first incident or problem. Government regulators are perceived to be struggling through the various regulatory acts the same as the firms are (D - 83), but still with the power to be "unfair" or unreasonable at any time (D - 84). Regulations are in flux and regulatory change has been significant in recent years, from general indifference to serious concern by the government (D - 85). This sudden governmental concern was pushed by an aroused public who saw the government essentially doing nothing in the face of chemical firm arrogance (D - 86), resulting in major government response and large change for the chemical industry (D - 87 & 88).

Firm D respondents expect regulations to get tougher yet (D - 89), and this is seen as costly to both the firm and the government because of enforcement and monitoring costs (D-90). Firm D spends money now in anticipation of toughening future regulation (D - 91). The firm would prefer self-regulation and this is seen as potentially efficient for both the firm and the government, although no mention was made of benefit to the public. Self-regulation would fit well with firm D's preference for stepped environmental behavior change, where incremental and sequential change is carefully monitored to insure efficient benefits to the firm at each step (D - 92).

Despite the low esteem firm D executives have for some regulatory staff (D - 93 & 94), regulators are also extended some sympathy because regulators are seen as being buffeted by unfair and unreasonable demands from the public (D - 95). The Canadian regulation and regulatory system is seen as superior to the American system (D - 96). The Canadian regulatory system has improved in recent years (D - 97), and deals with firms in a businesslike way, negotiating standards that both the firm and the government can live with (D- 98).

The government, along with the community and the firm is becoming better educated about environmental practice (D - 99). The government desires to have a good public image as much as the firm does (D - 100), and so that drives some government behavior. Firm D executives are convinced that the government is afraid of the public (D- 101), and too cowardly to force better environmental behavior onto the public, and so takes the easy route of "picking-on" industry. Operators also noted that although some behaviors were strictly monitored by the government, that other behaviors, perhaps just as environmentally serious, are completely ignored (D - 102). Government closure of a facility is still more likely because of a health and safety violation than for an environmental violation (D - 103).

The issue of fairness in regulation and enforcement was mentioned by both operators and corporate executives. The industry is seen as completely sophisticated in terms of environmental concern especially when compared to the general public (D - 104 &105). Industry is far ahead of farmers in their concern for the natural environment (D - 106). The chemical industry generally is also seen as being ahead of most other industries, especially some petroleum firms in the immediate vicinity of the plant (D - 107). Industry is more progressive and concerned about ecological issues than is the public, in the estimation of firm D operators (D - 108). The public is unable to make the connection between product and the facility that creates the product (D - 109 & 110). The firm believes that it's behaviors do show concern for their community (D - 111). When the government does write regulations to effect behavior by the smaller firms or individuals, such as dumping used engine oil down sewer mains, the larger corporations are affected as well (D - 112).

Interpretation of Internal Pressures

Firm D espouses strong environmental values and awareness of these values and expected behaviors by both executives and by workers. Some respondents state that the firm's environmental behavior is more driven by internal values than by external factors such as government or community (D -113). Awareness by workers and by management of society's expectation of good behavior is admitted by all to be a driver (D - 114 & 115). Operators and management are believed to be in agreement about proper environmental behavior (D - 116 & 117). Management is seen by the operators as being honest about the environmental behavior of the firm (D - 118), and are harsh with employees who stray from approved behavior (D - 119). Pride in their work is expected of all employees (D - 120) and this pride in quality work and careful environmental behavior is presented as a way of life (D - 121). Operators carry the corporate message of good environmental behavior out to the community, and this is viewed as being an honest and sincere belief in the rightness of the firm's environmental position (D - 122 & 123). Production values have been sacrificed at times for safety values (D - 124). Operators believe that the firm is worthy of their respect (D - 125), and that this respect for the firm is shared by the government regulators (D - 126 & 127). Firm D executives acknowledge their firm's specific responsibility for achieving proper environmental behavior (D - 128), and expect the industry to generally share this sense of responsibility for their actions and behaviors.

Management has great trust in the ability and willingness of the operators to achieve environmental performance standards. Workers are expected to achieve quality results without constant supervision, and are essentially without supervision for sixteen hours per day as the plant operates on a 24 hour schedule (D - 129). Workers take pride in their work and accept this responsibility (D - 130 & 131). As well, careless operator work results in accidents, and accidents often result in even tighter controls and guidelines from management (D - 132). Workers are punished with suspensions if they are found to be behaving in unsafe ways or breaking firm guidelines (D - 133).

Both operators and executives claim greater awareness and knowledge about environmental behavior than several years ago. This includes waste disposal and emission releases (D - 134 & 135), with correct behavior being made easier by the presence of the environmental engineer on staff (D - 136). Some operators claim their environmental behavior off-site has improved over the past few years because of the learning and awareness gained at the plant site (D - 137 & 138).

Firm D has a history of self-disclosure to the government, for example the reporting of a possible carcinogenic product twenty years ago which has subsequently lead to substantial regulatory changes (D - 139 & 140). This self-governance continues, with the firm preferring to shut down production rather than flare (D - 141). Firm D never flares (D - 142 & 143), and this because of concern with public perception of safety (D - 144 & 145). Overall, firm D makes every effort to simplify their process and behavior thereby making their facility safer (D - 146).

Firm D has set-up reporting requirements for all staff that are designed to prevent cover-ups or unacceptable behaviors from happening (D - 147). Daily reports are expected on most operations, and any exceptional observations are sent to head office for further analysis (D - 148). Safety, health and environment meetings are mandatory and are regularly scheduled, and environmental behavior is discussed and new expectations explained in these meetings (D - 149 & 150). Workers all have access to environmental information on their e-mail, and they are expected to check daily (D - 151). Personal safety monitoring is much tighter over the past ten years, and allowable levels of exposure have declined as well (D - 152). All management of firm D is given a personal audit every two years, and environmental awareness and behavior is part of that audit (D - 153).

Overall environmental awareness at firm D increased significantly with the 1985 buyout of the firm by the present parent corporation, and with the infusion of new management personnel (D - 154 & 155). Operators claim that values have shifted over the past sixteen years (D - 156), partly because of the presence of the environmental engineer on staff (D - 157), and partly because of courses and education programs sponsored by the corporation and the government (D - 158). Operators are aware of all processes at firm D, and they claim knowledge of environmental consequences for bad behavior as well (D - 159, 160 & 161).

Finally, internal awareness was influenced by the chemical disaster in Bhophal in 1984. Some large conglomerates divested themselves of chemical facilities after Bhophal (D - 162 & 163). Firm D executives claim that Bhophal did not affect their behavior, although they certainly took stock of their operations (D - 164). One executive is convinced that the corporation will one day have a catastrophic accident of their own, regardless of safe practice (D - 165).

Interpretation of Community Pressures

Firm D employees feel that the community and the public should be concerned about the safety of the firm's facility, because chemical plants are dangerous places and accidents can happen (D - 166). The firm is interconnected with society, partly through of the permeability of the corporate / community boundaries by operators and employees sharing both worlds (D - 167).

The public is seen as a very powerful force and able to close the facility if they chose (D - 168 & 169), yet the community and the public in Canada is perceived to be apathetic about the behavior of chemical firms (D - 170 & 171). Perhaps the public is less concerned now because the firms are being open and forthcoming when questioned (D - 172), or perhaps because of rapport established with the local community (D - 173), or even that the community takes the firm's facility for granted (D - 174).

It is "scary and confusing" to attempt communication with the community (D - 175), partly because direct face to face communication with the community is a new demand on most executives (D - 176). The firm has held open houses and BBQs (D - 177 & 178), and makes efforts to respond directly to community concerns (D - 179). Still, the firm makes no direct efforts to monitor public opinion (D - 180), and believes that the public has no real concerns with the facility (D - 181 & 182). Firm D executives also believe that communication has to be a two way process and the firm cannot do it successfully as a one-way process (D - 183 & 184).

The media is seen as confusing and unfair (D - 185), and publishes only the stories about chemical firms that will catch the attention of the reader (D - 186). Activists are seen as largely irrelevant and much less powerful than they used to be (D - 187). Activists are now much more cooperative with the firm and more reasonable than they used to be (D - 188), although one executive expressed the opinion that Greenpeace was "out to lunch" (D - 189). Public opinion is understood to be fragile and open to manipulation, so attention is paid to all expressed concerns as even a few "biased" individuals can sway public opinion (D - 190 & 191).

The firm feels misunderstood by the public (D - 192), and also claims that the public is confused, uninformed and emotional (D - 193). Public expectations have risen over the past ten years (D - 194 & 195), and these expectations are still in flux (D - 196 & 197). Expectations from the public for even more environmental controls are seen as unrealistic in the current economic climate (D - 198 & 199), although these expectations are also seen as lightening somewhat recently (D - 200, 201 & 202). One executive expressed the opinion that the recession was a good thing as environmental expectations on the chemical industry became more realistic (D - 203). The public is unwilling to accept any risk from chemical firms (D - 204). Because some environmental demands are so expensive and time consuming, the public is believed to be getting in the way of continued environmental progress and improvement (D - 205).

The only answer offered by firm D executives to satisfy these public demands was continued good behavior. Good behavior is required to stay in business (D - 206, 207 & 208). Because public acceptance of the firm is seen as essential (D - 209), the firm wants an image of complete openness with the public and strives to make that image a reality (D - 210).

Part Three: INDICATORS FOR FIRM D

ECONOMIC
COMPARATIVE EXPRESSED CONCERN

	not mentioned	Low	Med	High
EFFICIENCY CONCERNS				
Efficiency (less waste) is also a lower liability	D			
Large projects cause stalling in small projects	D			
Firm wants efficiency in environmental spending				D
Improvements become more expensive over time			D	
Being pro-active not that expensive	D			
Environmental projects usually don't show return			D	
Some behaviors very expensive but must be done	D			
LIABILITY CONCERNS				
Risk management because of liability awareness			D	
Economic analysis is only meaningful analysis			D	
Pressures from banks and insurance companies			D	
Personal liability	D			
Liability is a future economic cost			D	
Environmental performance impacts economic performance			D	
Better systems give lower plant liability			D	
Liability concerns is large driver of-behavior				D
COST AND CONSTRAINT CONCERNS				
Production is the number one priority			D	
Connection between large firms with big budgets and Env beh				D
Firm must be efficient and make money, cost efficiency				D
Making money is the only motivator				D
Financial cost of environmental behavior is huge				D
Must spend on environmental behavior or close down				D
Open cheque book for environment		D		
Benefits from good E behavior more than economic		D		
Impacts stockholder confidence, financial constraints, budgets				D
Aware of firm economic power in community	D			

GOVERNMENT COMPARATIVE EXPRESSED CONCERN

POWER OF REGULATION

Regulation establishes level playing field	D	.	.	.
Government controls timing of regulatory change	.	.	.	D
Regulation is number one driver in short-term	.	.	.	D
Regulation safeguards community and environment	.	.	D	.
Regulation is expensive to firm and government, not needed	.	.	D	.
Regulation will get tougher and broader, could shut you down	.	D	.	.

MOTIVATION OF GOVERNMENT FOR REGULATION

Government afraid of public, responds. wants to look good	.	.	.	D
Govt hands-off to environment, economic concerns	.	.	D	.
Env awareness and tech knowledge drives govt	.	.	.	D

FIRM DEALING WITH REGULATION

Continuous improvement, pro-active, create buffer	.	.	D	.
Interpretation of regulation as important as regulation	D	.	.	.
Govt negotiates on regulation, personal history and trust	.	.	D	.
Report honestly, report everything	D	.	.	.
Firm and government face the same pressures	.	.	.	D
Worried about meeting current regulation, fines for violations	.	.	D	.

GOVERNMENT COMPETENCE

Government ineffective and incompetent	.	.	.	D
Industry could be self regulating, leads govt	.	.	.	D
Regulation irrelevant, firms regulate themselves	.	.	D	.

CUSTOMER COMPARATIVE EXPRESSED CONCERN

CUSTOMER SATISFACTION

Customer is the number one stakeholder and driver	D	.	.	.
Can win awards for customer satisfaction	D	.	.	.
Need good environmental behavior for customer satisfaction.	D	.	.	.

FIRM MUST EDUCATE CUSTOMER

Customer needs to be educated by firm	.	.	D	.
Customer needs to understand firm position in Industry	D	.	.	.
Help customer with safe product usage	D	.	.	.

WHAT DO CUSTOMERS WANT

Customer may seek the lowest price	.	.	.	D
Recognition for Environmental excellence a competitive edge	D	.	.	.
Quality product and lower price is the real strength of the firm	D	.	.	.

COMMUNITY
COMPARATIVE EXPRESSED CONCERNS

POWER OF COMMUNITY

Need to be pro-active to get message out to community	.	.	.D	.
Need public on your side, public sets ultimate standard	.	.	.D	.
Community can influence government	.	.	.	.D
Try to keep the public satisfied, ~~answer their~~ concerns	.	.D	.	.
Community is powerful and can punish firm	.	.	.D	.

PUBLIC EXPECTATIONS, PASSIVITY

Public expectations are constantly increasing	.	.D	.	.
Community concern is mostly health, safety and Economic	.D	.	.	.
Public is passive, ignorant, and doesn't care	.	.	.	.D
Public is afraid, emotional. and concerns are personal	.	.	.D	.

IMAGE AND PUBLIC RELATIONS

Firms have negative public image, seen as all the same	.	.D	.	.
Firm must be a good neighbor, contribute to comm.	.	.	.D	.
Public relations function is critical	.D	.	.	.
Concern about activists and media	.	.	.D	.

PUBLIC BEHAVIOR AND INFORMATION

Community pollutes worse than the firm, firm safer than home	.	.D	.	.
Community learns from employees, employees parts of comm	.	.	.D	.
Firm learns from stakeholders, public not single entity	.	.	.D	.
Disasters anywhere in world raise public consciousness	.	.	.D	.

INTERNAL
COMPARATIVE EXPRESSED CONCERNS

EMPLOYEES AND THE UNIONS

Concerns with the Unions	.D	.	.	.
Employee and peer pressures	.	.	.D	.
Pressures on employees from family and friends	.	.	.D	.
A satisfied employee is a happy employees	.D	.	.	.
Firm disciplines workers for poor environmental performance.	.	.	.D	.
Firm supplies an abundance of information for employee	.	.	.D	.
Firm has many long-term employees, many senior staff	.	.D	.	.

FIRM INTERNAL SYSTEMS, AUDITS

Firm audits safety, health and environmental behaviors	.	.	.D	.
Firm audits suppliers for safe environmental behaviors	.D	.	.	.
Much autonomy from head office	.	.D	.	.
Spending huge amounts of money sends a message	.D	.	.	.
Responsibility includes timely behavior	.D	.	.	.
Internal systems hinder environmental improvement	.	.D	.	.
Firm has internal competition for environmental funds	.D	.	.	.

VALUES, CULTURE, LEADERSHIP				
Vision statements, personal responsibility, firm values	.	.	.D	.
Env awareness of senior executives, responsible culture	.	.	.D	.
Have a longer term and more Env. focus than before	.	.D	.	.
Responsible Care Program, CCPA standards	.D	.	.	.
Firm a model for the Industry, performance pride	.D	.	.	.
Number one priority health and safety, safer workplace	.	.	.D	.
INTERNATIONAL AWARENESS				
International pressures and awareness	.	.	.	.D
Firm has an awareness of international incidents	.	.	.D	.
International pressures and standards affect firm practice	.	.	.	.D
GOOD BEHAVIORS ALREADY ACHIEVED				
The best projects are already done, technological limits	.	.D	.	.
Env. incidents can be contained, preventable accidents	.D	.	.	.
Technology allows change and improvement	.	.	.D	.
OTHER FIRMS				
Insecurity and inferiority complex about other firms	.D	.	.	.
Help other firms with environmental advice and help	.	.	.D	.
Best achievement by any firm should set new standard	.D	.	.	.
Pressures from other firms, competitive advantage	.	.	.	.D
More pressure on large firms because small firms lack $	.	.	.	.D

Part Four: FINAL COMMENT FOR FIRM D

Along with firm F, firm D respondents expressed the most concern with economic and governmental and regulatory pressures. High or medium concern was expressed with seventeen of twenty-five economic indicators, and fifteen of eighteen government indicators. Community and internal factors also received attention, with customer satisfaction being of minor concern.

Cost and constraint concerns was the strongest category under Economic concerns for firm D. Some employees at firm D expressed the opinion that making money was the only motivator at the firm, a belief shared only with firm F. Some employees expressed the opinion that the cost of environmental behavior is huge, but that these funds must be spent or the firm could be closed down. The firm expressed the opinion that environmental behavior impacts stockholder confidence. Many of these opinions were shared with firm F.

Firm D executives believe the government is ineffective and incompetent, that the industry could be self regulating and that the industry likely leads government in setting acceptable environmental standards. The firm believes that the firm and the government face the same pressures, but respond in different ways. Firm D executives are alone in believing that environmental awareness and technical knowledge drives the government to act. Firm respondents believe that the government is afraid of the public, and makes it's responses in part so that it looks good to the public. Firm executives acknowledge that the government is the main driver of environmental behavior in the short term, and very much controls the timing of change driven by regulation.

Along with firms A and B, firm D executives strongly believe the public is passive and ignorant, but also believes along with firms B and E that the communities have the ability to influence government. The firm sees learning between the community and the firm as mutual, with one influencing the other: the community influencing the firm because of it's expressed stakeholder concerns, and the firm influencing the community because their employees are part of the community.

Firm D respondents were aware of international pressures and of the influence of international standards on firm behavior. The firm expressed concern about competitive advantage and the influence of other firms, yet still believes that firms should assist each other with environmental information. Internal firm culture was an influence on behavior, with the environmental awareness of senior executives suggested as a driver for the creation of a responsible culture.

Almost no concern was expressed about customer interests and demands.

3.6 FIRM E - THE CASE

Four pressures that influence the environmental behavior of firm E are identified by firm respondents. Economic and future liability considerations are given heavy weight by Firm E personnel. Concern with customer opinion and community concern are also considered major drivers, followed by government regulatory pressures and expectations.

PRESSURES ON FIRM E

1. Economic and future liability
2. Customers
3. Community
4. Government and regulatory

Part One: PRESSURES

Economic Pressures

Firm E executives understand the chemical industry as a "dog eat dog" world, with customers continuously demanding better quality product at a cheaper and cheaper price (E - 1). Firm E describes a quality product as one with low use risk and with minor potential liability, and so works on their system and delivery specifically to lower risk and liability potential (E - 2). Executives believe a better system leads to success for both the customer and the firm, and so provides both a competitive and liability edge (E - 3). Both lower cost and lower potential liability are identified as major objectives for the firm. Risk factors are not constant however as new technology identifies unexpected problems with previous practice, and this in turn leads to current liability because of previous practice (RN-54). Acceptable risk twenty years ago is not acceptable today (E - 4).

Firm E executives believe that doing the "right thing" does not really cost all that much, and so is it not worth the risk to not do the "right thing" (E - 5). For example, disposing of waste costs money, so reducing the waste reduces the cost, and also reduces future liability (E - 6). This change of system is seen as a win for everyone concerned and incidentally a win for the environment as well. A budget for environmental improvement is established from head office (E - 7), and this is partly driven by executive awareness of personal liability for irresponsible corporate practice (E - 8).

Firm E offers training courses and awareness seminars at the plant site, and executives and operators believe that chemical plant work is likely safer than work in an average household (E - 9). Still, this increasing knowledge is a constant as better technology identifies the effects of chemical product, and this drives future regulation (E - 10). An example of this increased knowledge is found in products landfilled thirty years ago which have still not degraded even though this degradation was not a concern at the time (E - 11). Increased knowledge and technical ability are identified as intelligent drivers for environmental behavior change.

Customer Pressures

Customer satisfaction is "absolutely" the number one driver for firm E. Stockholder returns, management compensation, corporate action, profits, and research are all driven by the customer (E - 12). For example, firm E spends over sixty million dollars per year on research, twice what anyone else in the industry spends, trying to anticipate future customer problems with the environment and environmental policy (E - 13). The customer pays for this service, which creates problems for firm E. Firm E executives claim the firm is a leader in the industry, and also as an educator and promoter of good environmental behavior to it's customers. Customers need to be convinced that lower product cost often translates into higher potential liability, because these cheaper products may have side effects that firm E, in creating a more expensive product, has already dealt with and compensated for (E - 14). Firm E executives worry about being dropped by customers who seek out the lower priced competitor product (E - 15). The challenge for firm E is to produce the quality low liability product, and at a reasonable price, and then to convince the customers that it is in their own best interests to pay a slightly higher price in exchange for reduced future liability (E - 16 & 17). Operators note that some attempts are made to monitor customer use of the product, but are unsure about how successful these attempts are (E - 18). Firm E applied for a Malcolm Muggeridge (RN-55) award for customer satisfaction last year (E - 19), and are attempting to improve their customer satisfaction performance even more this year before applying for the award again.

Community and Image Pressures

Both operators and executives at firm E believe that the chemical industry has a terrible historical reputation (E - 20). Incidents like Love Canal with Hooker Chemical (RN-56) and Bhophal in India have raised the public's awareness and concern with chemical facilities generally, and especially those in close proximity to their own communities (E - 21). This questioning and awareness about all firms creates the need for the firms to be good neighbors and to be perceived as good neighbors (E - 22). The public is also more aware because more types of information are more easily accessible, and because of an increased level of education and concern generally in the communities (E - 23). The CCPA was set-up at least in part to respond to the need for more positive relationships between the chemical industry and the public, and the CCPA is seen as a critical resource for continued environmental change (E - 24).

The media does not help the firms to achieve this positive relationship with the communities. The media is seen as selling ignorance to the public (E - 25). The media does report bad practice where-ever it occurs, and firm E executives believe that they must earn a good reputation by achieving good corporate behavior (E - 26). The firm was one of ten Fortune 500 winners for most improved environmental performance last year (E - 27).

Government and Regulatory Pressures

Public opinion, community awareness, and activist pressures are believed to drive the government to take environmental action through regulation. Given that historical chemical firm behavior was horrible, and firm E executives believe that some industry behavior still is horrible, the public do have the right to be concerned and to expect action from the government (E - 28). Firm E operators believe that the government never backs off, and the increase in regulatory control will be a steady tightening of controls but not so harsh as to actually cause firm closure (E - 29). Not only are existing standards becoming tighter, but what is actually measured and regulated is also becoming broader (E - 30). Executives claim that easier regulation is not their goal, and that this will not happen anyway (E - 31). Government pressures are felt from both Provincial and Federal levels (E - 32).

Part Two: INTERPRETATION OF PRESSURES

Interpretation of Economic Pressures

Firm E executives make efforts to be future oriented, and to anticipate future problems both for the firm and it's customers (E - 33). A waste lagoon was decommissioned on site for example, not because there were current problems with regulation or effectiveness of the lagoon itself, because of concern about potential liability given the experience of most firms with lagoons (E - 34 & 35). Similarly, firm E has even closed some older facilities believing that it is less expensive to mothball now than in the future (E - 36 & 37). The firm has terminated production of certain products when better alternatives were found, even though a market still existed for the older product (E - 38).

These actions reflect the concern of firm E with efficiency and cost effectiveness. The firm has moved to a just-in-time inventory system to reduce the amount of storage required on the site (E - 39), and so has lower maintenance cost and capital cost involved in product storage. Firm E is a specialty chemical maker, meaning that their product is produced in smaller batches, often as special orders, and are not bulk production as with other firms in the sample. Lower waste because of improved delivery systems results in lower cost for disposal of waste both for firm E and the customer (E - 40 & 41), thereby is a cost efficiency driving environmental behavior. All environmental behavior at firm E must be budgeted for and is expected to achieve some measure of cost effectiveness (E - 42). The firm is prepared to spend large amounts of money to achieve environmental improvements to the product (E - 43), although these efficiencies no longer come easily.

Operators believe the firm needs efficiencies in order to maintain it's competitive edge while dealing with tighter regulatory controls (E - 44, 45 & 46). Executives also believe that the firm needs to operate "smart", and work hard, to achieve responsibility in a cost effective way (E - 47). Firm executives believe that learning leads to concern and eventually to improvement (E - 48), and that the firm is doing all it can even though change is slow and expensive (E - 49). Recognition for environmental excellence is seen as being a competitive edge (E - 50). The quality of the firm's products is believed by executives to be the real strength of the firm (E - 51), and this quality and dependability of product combined with low liability results in market share and ultimate corporate success (E - 52).

Firm E executives make attempts to distance the firm from other firms in the chemical industry, but with mixed results. The firm is constantly doing damage control by claiming difference from others in the industry mostly by being a specialty producer of liability-free products (E - 53), but still must defend what the firm does compared to others who may be having incidents or spills (E - 54). Customers must understand how the firm is positioned relative to others in the industry otherwise they may not recognize the product quality differences (E - 55). Other firms, for example, are still using steel drums for storage and delivery, and firm E has moved at great expense into stainless steel tanker trucks and tanks and uses very few drums for delivery anymore (E - 56). The using of drums is seen as only a short-term financial advantage for the other firms, and confirms to firm E executives that good behavior can be expensive and not necessarily appreciated by others (E - 57). Firm E spends twice the amount of any other firm in the industry on research and development (E - 58), and also has the leading return-on-investment over time for the industry (E - 59). One executive claims that good behavior does not necessarily require an economic payback (E - 60), but at firm E the payback economic or otherwise would certainly be searched for.

Good behavior is seen as insurance by the firm (E - 61). Providing a low risk and low potential liability product to customers is a major part of the firm's competitive strategy (E - 62 & 63). The huge project to shift from steel drums to stainless steel tankers can be viewed mostly as an exercise in risk and liability reduction (RN-57)(E - 64 & 65), despite the low and slow economic payback (E - 66). Firm E believes in identifying future and potential liability risks and costs, and dealing with them now (E - 67). Even the 25 million dollar closed-loop water system at a neighboring facility is seen by firm E executives as a good investment because of the total negation of contamination risk down the road (E - 68). As technology improves, identified risks increase in number (E - 69). Firm E executives are looking twenty years down the road in terms of environmental projects (E - 70), and feel that all firms will always be held accountable for their behaviors (E - 71).

Interpretation of Customer Pressures

Firm E tries to meet the needs of their customers, and attempts to insure that firm E products are used responsibly, including the safe disposal of any waste (E - 72). Safe use of product extends beyond the plant to the community (E - 73). This safe use of product is a shared responsibility with customers, who may have to absorb an extra cost from firm E, but then firm E saves the customer waste and cost further down the process line (E - 74). The customer needs the best possible price, and firm E executives believe the customer is tempted to ignore quality and responsibility aspects of chemical products in exchange for a cheaper price (E - 75). Firm E has a formal customer feedback system in place (E - 76).

Firm E audits some subcontractors to be sure that their environmental behavior is also responsible (E - 77), and this is all part of the firm's desire for control of it's product from cradle to grave, including cleaning and maintenance of storage and delivery vehicles both on and off the facility site (E - 78).

All costs of chemical production, including a cleaner environment and cleaner air to breathe, are eventually borne by the consumer of the product (E - 79). These costs may be hidden in the product price, but are still ultimately the consumers expense (E - 80). The firm absorbs some costs in the short term as customers become educated about benefits related to a costlier product (E - 81). Executives hope that customers are wise enough to check out the environmental benefits and practices of their suppliers (E - 82), otherwise they may well choose the lower priced product (E - 83). Tighter environmental controls by regulators are seen as a competitive advantage to the firm.

Interpretation of Industry Pressures

Firm E has very mixed feelings about the chemical industry. Firm E executives believe that the industry is environmentally responsible and worthy of respect for their efforts and work, and that most CCPA members achieve high standards of good behavior (E - 84). At the same time, firm E operators believe that some previous chemical firm behaviors were truly awful and their bad historical reputation is deserved, and that some firms have not significantly improved their practice (E - 85). The industry is seen as being as concerned with image as it is with actual behavior. Some firms are irresponsible and still have violations of license requirements and regulation regularly (E - 86). That low level of responsibility is not acceptable at firm E (E - 87), and firm E achieves much more than the minimum (E - 88). The poor behavior of other firms affects the image of firm E however, even though executives are convinced that their own facility has a nil impact on the community (E - 89). The difference in firm or facility size and resources is not seen as an excuse for poor environmental behavior. Firm E executives believe that small firms can also have good environmental behavior (E - 90) even though the larger firms may have more financial resources to upgrade older facilities (E - 91). Behavior is partly undertaken because of image concerns, as the public can be terrible if aroused. The firm's previous good behavior is forgotten by the public when an incident occurs. (E - 92).

The Responsible Care program is seen as a great boon to the chemical industry. Some firms are seen as needing Responsible Care guidelines and should strive to achieve Responsible Care standards (E - 93). All firms must meet certain minimum standards to be allowed to stay in the community (E - 94). To change public perception about the behavior of chemical firms in the long run, firm E executives believes they should continue doing what they do now (E - 95).

Interpretation of Community Pressures

The public is seen as terrified and ignorant of chemical firms, yet do not seem interested in learning about the different firms (E - 96). The public does not distinguish between the firms, so individual firm exemplary behavior may be irrelevant in terms of public awareness (E - 97). The public is uninformed and uninterested (E - 98), and if there are no incidents there is little concern. In one sense this suits firm E, as firm executives believe that chemical executives are better informed and more able than the public or government regulators to run chemical facilities and should therefore be in full control of their own facility and business. Executives feel that as the firm's stakeholders have expanded in number that the knowledge and learning of the firm and it's employees has increased (E - 99). The public does not speak with a single voice however, and different geographic locations have different concerns. The regulations and the firm should be in agreement, the purpose being to safeguard the community and the environment (E - 100).

Operators at firm E feel that the firm's products are in many cases safer to use than are ordinary household products (E - 101). The public is afraid of chemical plants, yet ignorant of products they use themselves that may be just as harmful, if not more so (E - 102). The media is partly to blame for the emotional and ignorant state of affairs (E - 103), as they "blow it way out of whack, especially with chemicals" (E - 104).

Interpretation and Government Pressures

Both operators and executives in firm E have little respect for government regulators. Operators note that the government is largely ineffective in both regulation and import control, either over reacting or not reacting at all (E - 105 & 106). Executives feel that the government is largely indifferent about the behavior of the industry or the condition of the environment, setting low minimum standards that even poor performers can reach (E - 107). This ineffectiveness may be caused by government regulatory positions being staffed by second rate staff (E - 108). Most regulation is perceived as being copied from other jurisdictions (E - 109).

Executives in firm E believe that the industry should be self-regulating (E - 110), and that firm E is fully able to monitor it's own activities. The CCPA influences and assists the government in writing regulation, enhancing the assumption that the industry can take care of itself (E - 111). Some believe that the industry, not the community or the government, has decided to champion the environment and will continue to improve their practice (E - 112). Despite this concern the CCPA does not lobby for higher and more difficult standards so that Industry behavior improves even more.

The attitude of firm E executives toward regulation reflects a conviction of firm superiority. All employees are convinced that regulations are getting tougher (E - 113), and that emissions for example will be tightened down until eliminated (E - 114). Regulation and standards for acceptable behavior have changed. Awareness of the consequences for bad behavior have also increased (E - 115), and these consequences include fines or even threat of closure in extreme cases (E - 116), much less the ecological costs.

Regulation and other standards such as ISO 9000 only set the minimum acceptable standards (E - 117 & 118). Most CCPA firms including firm E go considerably beyond regulation, and go the "extra distance" (E - 119 & 120). Regulation becomes less relevant because the firm operates under it's own principles which are much more stringent than the government's regulations (E - 121). The firm allows an independent CCPA audit for example (E - 122), and expects to exceed all regulation, including new regulation (E - 123). The firm has much interaction with the government and the regulators (E - 124), and executives keep aware of pending regulation (E - 125). The firm makes extensive use of lobbyists to keep in touch with government policy and thinking (E - 126). Executives from the firm believe that proper environmental behavior may prove the ability of the firms to self-regulate (E - 127), and thereby escape from the fear of "unreal expectations" when regulated by some outside body (E - 128). Firm E operators believe that complete cooperation with the government leads to the best safeguards for the environment (E - 129). Environmental performance will improve over time (E - 130), and firm E employees believe that regulation does ultimately protect the public and the environment (E - 131).

The values of firm E can be seen partly as a reflection of the way the internal operation of the plant is handled. Firm E has extensive retraining so staff are better able to handle superior delivery and service requirements (E - 132), and this is seen as essential to ensure compliance with corporate principles (E - 133). Training is an important element of operations at firm E, and "that's the way it should be" (E - 134). Other specific behaviors include: better controls for handling waste (E - 135); recycling (E - 136); better information to clients and others through Material Safety Data Sheets (RN-58)(E - 137 & 138); and better care regarding the use of landfills (E - 139). The most dramatic change at firm E is the switch over from steel drums to stainless steel tankers, and although very expensive, this was examined first from an environmental standpoint, and not the economic (E - 140). Workers are seen as part of the community (E - 141), and are the best communicators of firm policy and behavior to the community (E - 142). The workers see this activity as proof that the firm is responsible with good values (E - 143 & 144). Firm E also has multiple policy statements and guidebooks which insures informed and aware employees (E - 145 & 146).

Good behavior including continuous improvement of environmental behavior is simply "the right thing to do" (E - 147 & 148). Firm E executives believe that good behavior is really only good business behavior, and this behavior creates value for all concerned, particularly the stockholders, managers, and customers, and ensures firm survival (E - 149). This belief is reflected in all practices and behaviors (E - 150). Firm E has full support for these expressed values from their executive staff (E - 151), who partly choose to work for firm E because of these values (E - 152, 153 & 154). The values lead to lower risk, and demand a long-term perspective (E - 155 & 156). Staff are well aware of the consequences of bad behavior (E - 157), and believe that bad behavior can haunt the firm for decades (E - 158). Incidents like Bhophal were a watershed for the industry, and convinced the corporations of the need to operate responsibly in the communities, and to assume a cradle to grave philosophy (E - 159). Firm E demonstrates strong corporate values and expects support for these values from both management and operators (E - 160).

Part Three: INDICATORS FOR FIRM E

ECONOMIC
COMPARATIVE EXPRESSED CONCERN

	not mentioned	Low	Med	High
EFFICIENCY CONCERNS				
Efficiency (less waste) is also a lower liability			E	
Large projects cause stalling in small projects	E			
Firm wants efficiency in environmental spending				E
Improvements become more expensive over time				E
Being pro-active not that expensive				E
Environmental projects usually don't show return			E	
Some behaviors very expensive but must be done	E			
LIABILITY CONCERNS				
Risk management because of liability awareness				E
Economic analysis is only meaningful analysis	E			
Pressures from banks and insurance companies	E			
Personal liability			E	
Liability is a future economic cost				E
Environmental performance impacts economic performance				E
Better systems give lower plant liability				E
Liability concerns is large driver of behavior				E
COST AND CONSTRAINT CONCERNS				
Production is the number one priority	E			
Connection between large firms with big budgets and Env beh		E		
Firm must be efficient and make money, cost efficiency				E
Making money is the only motivator	E			
Financial cost of environmental behavior is huge				E
Must spend on environmental behavior or close down		E		
Open cheque book for environment	E			
Benefits from good E behavior more than economic		E		
Impacts stockholder confidence, financial constraints, budgets				E
Aware of firm economic power in community	E			

GOVERNMENT COMPARATIVE EXPRESSED CONCERN

POWER OF REGULATION

Regulation establishes level playing field	.E	.	.	.
Government controls timing of regulatory change	.E	.	.	.
Regulation is number one driver in short-term	.E	.	.	.
Regulation safeguards community and environment	.E	.	.	.
Regulation is expensive to firm and government, not needed	.E	.	.	.
Regulation will get tougher and broader, could shut you down	.	.E	.	.

MOTIVATION OF GOVERNMENT FOR REGULATION

Government afraid of public, responds. wants to look good	.	.	.	.E
Govt hands-off to environment, economic concerns	.	.	.	.E
Env awareness and tech knowledge drives govt	.	.	.E	.

FIRM DEALING WITH REGULATION

Continuous improvement, pro-active, create buffer	.	.	.E	.
Interpretation of regulation as important as regulation	.E	.	.	.
Govt negotiates on regulation, personal history and trust	.	.E	.	.
Report honestly, report everything	.E	.	.	.
Firm and government face the same pressures	.E	.	.	.
Worried about meeting current regulation, fines for violations	.	.E	.	.

GOVERNMENT COMPETENCE

Government ineffective and incompetent	.	.	.E	.
Industry could be self regulating, leads govt	.	.	.	.E
Regulation irrelevant, firms regulate themselves	.	.	.	.E

CUSTOMER COMPARATIVE EXPRESSED CONCERN

CUSTOMER SATISFACTION

Customer is the number one stakeholder and driver	.	.	.	.E
Can win awards for customer satisfaction	.	.	.	.E
Need good environmental behavior for customer satisfaction.	.E	.	.	.

FIRM MUST EDUCATE CUSTOMER

Customer needs to be educated by firm	.	.	.E	.
Customer needs to understand firm position in Industry	.	.	.	.E
Help customer with safe product usage	.	.	.	.E

WHAT DO CUSTOMERS WANT

Customer may seek the lowest price	.	.	.E	.
Recognition for Environmental excellence a competitive edge	.	.	.E	.
Quality product and lower price is the real strength of the firm	.	.	.	.E

COMMUNITY
COMPARATIVE EXPRESSED CONCERNS

POWER OF COMMUNITY

Need to be pro-active to get message out to community		E		
Need public on your side, public sets ultimate standard			E	
Community can influence government				E
Try to keep the public satisfied, answer their concerns			E	
Community is powerful and can punish firm			E	

PUBLIC EXPECTATIONS, PASSIVITY

Public expectations are constantly increasing		E		
Community concern is mostly health, safety and Economic	E			
Public is passive, ignorant, and doesn't care			E	
Public is afraid, emotional. and concerns are personal		E		

IMAGE AND PUBLIC RELATIONS

Firms have negative public image, seen as all the same			E	
Firm must be a good neighbor, contribute to comm.				E
Public relations function is critical	E			
Concern about activists and media			E	

PUBLIC BEHAVIOR AND INFORMATION

Community pollutes worse than the firm, firm safer than home			E	
Community learns from employees, employees parts of comm			E	
Firm learns from stakeholders, public not single entity			E	
Disasters anywhere in world raise public consciousness			E	

INTERNAL
COMPARATIVE EXPRESSED CONCERNS

EMPLOYEES AND THE UNIONS

Concerns with the Unions	E			
Employee and peer pressures	E			
Pressures on employees from family and friends	E			
A satisfied employee is a happy employees	E			
Firm disciplines workers for poor environmental performance.	E			
Firm supplies an abundance of information for employee		E		
Firm has many long-term employees, many senior staff	E			

FIRM INTERNAL SYSTEMS, AUDITS

Firm audits safety, health and environmental behaviors			E	
Firm audits suppliers for safe environmental behaviors			E	
Much autonomy from head office		E		
Spending huge amounts of money sends a message				E
Responsibility includes timely behavior	E			
Internal systems hinder environmental improvement	E			
Firm has internal competition for environmental funds	E			

VALUES, CULTURE, LEADERSHIP				
Vision statements, personal responsibility, firm values	.	.	.E	.
Env awareness of senior executives, responsible culture	.	.	.E	.
Have a longer term and more Env. focus than before	.	.	.	.E
Responsible Care Program, CCPA standards	.	.	.E	.
Firm a model for the Industry, performance pride	.	.	.E	.
Number one priority health and safety, safer workplace	.	.	.E	.
INTERNATIONAL AWARENESS				
International pressures and awareness	.	.E	.	.
Firm has an awareness of international incidents	.	.	.E	.
International pressures and standards affect firm practice	.	.E	.	.
GOOD BEHAVIORS ALREADY ACHIEVED				
The best projects are already done, technological limits	.	.	.	.E
Env. incidents can be contained, preventable accidents	.E	.	.	.
Technology allows change and improvement	.	.	.E	.
OTHER FIRMS				
Insecurity and inferiority complex about other firms	.E	.	.	.
Help other firms with environmental advice and help	.	.E	.	.
Best achievement by any firm should set new standard	.	.	.	.E
Pressures from other firms, competitive advantage	.	.	.	.E
More pressure on large firms because small firms lack $	.	.	.E	.

Part Four: FINAL COMMENT FOR FIRM E

Along with firm C, firm E respondents consider customer concerns as the most significant pressure on their environmental performance. Eight of nine categories regarding customers ranked as high or medium in expressed concern for respondents from firm E. Economic concerns are the second most serious concern, closely followed by community, internal concerns, and government.

The customer is identified as the number one stakeholder and driver for environmental action. Firm E was the only firm of the six that expressed any concern at all about winning awards for it's customer satisfaction rankings. Firm E was the only firm who expressed a high belief that a quality product and a lower price was the real strength of the firm, although this was a medium concern of firm C as well. Along with firm C again, firm E expressed high concern with the need to convince the customer about the relative position of the firm in the industry, and also the desire to help the customer with safe product usage. The fear that customers would seek the lowest price regardless of quality is a medium concern for firms E.

Economic concerns were of major concern for firm E. Firm E employees were alone in expressing the high conviction that being pro-active was not expensive. The firm also believes that efficiency in environmental spending is required, and that any needed improvement only becomes more expensive over time. Along with firm F, firm E practices risk management because of their awareness of liability issues. Along with firm C, firm E believes that liability is a future economic cost, and that environmental behavior impacts economic performance. This is consistent with the customer focus of the firm, as perceived bad behavior by the firm translates into consumer punishments such as boycotts. Better internal systems of process management assist in achieving lower liability. Although the cost of environmental behavior is huge, lack of environmental behavior impacts stockholder confidence.

The firm believes that the community influences the government, and so the firm attempts to be seen as a good neighbor. The public sets the ultimate standards for industry, and the firm attempts to keep the public satisfied and answer their concerns. An unhappy community can punish the firm. Firm E respondents believe that all firms have a negative public image, and is concerned about activists and the media, yet the promotion of a public relations function was not mentioned. The firm also believes that the firms generally have superior performance compared to the communities, and that the communities learn from the firm. Finally, firm E learns from it's stakeholders, and sees the communities and the publics as a broad spectrum of differing opinions and needs, and certainly not as a single entity.

Little concern was expressed by firm E respondents about employees or Unions. Technological changes received more interest as technology allows change and improvement, but the firm also believes that the best environmental projects have already been done. Interest in other firms was expressed, and firm E respondents believe the best achievement of any firm should become the new industry standard. Environmental behavior as a competitive advantage was also mentioned by firms E, D and F. Executives believe the firm's focus is more long term than in previous years, and conviction was expressed that leadership, firm culture and personal values have an influence on firm behavior. Firm E executives are interested in the firm being a model for the industry, following the guidelines laid out by Responsible Care and the CCPA. Spending large sums of money sends a message to employees, communities and others. Firm executives expressed more concern about monitoring the behavior of suppliers to conform with wise environmental behavior than any other firm. The firm audits it's own safety, health and environmental behavior as well.

Firm E executives and operators express remarkably little concern with regulation and government power. Firm E expressed little interest regarding government and regulatory controls. Firm respondents are convinced that the government is afraid of the public, yet wants to look good to this same public. Economic concerns dominate government agendas, and this partly explains the incompetence and ineffectiveness of the government in dealing with environmental matters. The industry leads government in awareness and safe practice, and firm E executives believe the industry could be self regulating.

3.7 FIRM F - THE CASE

Executives and operators identify four pressures that influence the environmental behavior of firm F. Government and regulatory pressures are seen as the paramount pressure for achieving certain environmental standards, closely followed by economic and liability pressures. Internal corporate influences are largely driven by the perception of firm executives that the firm lags behind others in the vicinity. The community is discussed at length, but is not seen to be a pressure that influences firm behavior directly.

Pressures Identified in Firm F:

1. Government and Regulation
2. Economic and Liability Concerns
3. Internal Corporate Influences
4. Community

Part One: PRESSURES

Government and Regulation

Regulation is claimed as the main influence on environmental behavior in firm F (F - 1). These regulations include the health, safety, and environmental regulations as well as the license approvals for the operating license (F - 2). There are fines for regulatory non-compliance, and executives suggest that the benefits of non-compliance are simply not worth the aggravation from regulators. Some of these regulations, and particularly the operating license requirements, are seen as forcing a short-term focus onto the firm (F - 3). The scope of licensing is also broadening, with the government now demanding corporate communication and participatory discussion with the local communities prior to license approvals (F - 4).

Firm F executives are very clear that the government is very much in charge and control of the regulatory process (F - 5). The pressures on the firm and on government are seen as being very similar, and so the government and the firm respond to the same pressures but in different ways (F - 6). Firm executives suggest that the main function of government members is to get themselves re-elected. The overall political awareness of the government is the main determinant of regulation, and this in turn pushes the firm to changed behaviors (F - 7). Regulation is constantly changing and becoming harsher (F - 8), and firm employees make huge efforts to achieve compliance and also to maintain a buffer between firm behavior and the regulatory standards (F - 9). Lawyers now have more say about the drafting of legislation (F - 10 & 11). The ultimate threat from government is the closure of the facility, but corporate executives do not see this as a feasible option even with the legalistic bent that the newer regulations have taken (F - 12).

Economic and Liability Concerns

The second major pressure for improved environmental behavior is identified by firm F respondents employees as financial. Firm F is in business to make money (F -13), and it is clear that economic return and financial issues loom larger than any social pressures (F -14). The balance between environmental benefit and economic cost is well understood (F -15), with corporate executives clearly understanding that all environmental behavior is budgeted around achieving adequate stockholder returns (F - 16 &17). In good profit years more money can be budgeted for environmental behavior (F - 18 & 19). Even finding money for specific new equipment with proven efficiency benefits is dependent on each unit achieving set financial goals (F - 20). Firm F is constrained by financial ability, and needed environmental behavior is understood as a tradeoff between stockholder returns and improved levels of performance (F - 21). Some environmental behavior is seen as cost efficient, and this allows some freedom in budgeting for more environmental initiatives (F - 22). The firm has a strong growth orientation, and expensive environmental programs are understood to constrain this growth (F - 23).

Firm F executives acknowledge that the environmental behavior of other firms affects the behavior of the firm (F - 24). This is seen as somewhat unfair as most other firms have a larger consumer interest while firm F is in a bulk and wholesale type business (F - 25 & 26).

Awareness of personal liability is mentioned as a driver for concern about environmental behavior (F - 27).

Internal Pressures

A major pressure for firm F is internal awareness and insecurity around the issue of their environmental behavior relative to other firms in the vicinity. This awareness almost amounts to an inferiority complex, but is a driver on corporate behavior. Operators and executives do not explicitly identify this relative awareness as a pressure.

Community and Public Pressures

Community and public pressure is discussed by both operators and executives at firm F, yet they conclude that the public is not really an influence on the firm's behavior. Executives are explicit that they feel no great social or economic pressure from the community (F - 28). The communities' influence is oblique. A change in public awareness can pressure the firm, but because the public's awareness is shared by the firm because firm employees are part of the community (F - 29). Although the community could be a major stakeholder, the public is very passive, and not necessarily because of faith in the competence of the firm (F - 30). The firm makes efforts to appease the few community members that do express concern (F - 31), and this concern is generally seen as being sincere although some members of the community are seen as ideological activists (F - 32). Most community concern is framed by health and safety issues (F - 33). Firm F executives do want to reassure the closest neighbors that the plant and the products of the plant are safe (F - 34). The number one priority of plant site management is the health and safety of the worker and the community (F - 35). Every stockholder has expectations of the firm, and these expectations may even be contradictory (F - 36), but the firm does not identify itself as a consumer products firm, and so is not concerned about public relations or image issues (F - 37 & 38). Firm behavior is affected by the community although firm executives downplay this influence, and believe that community interest in environmental issues is declining (F - 39). Achieving due diligence regarding the environment is the driver more than any philosophical position (F - 40), and this is consistent with firm F's focus on economic concerns.

Operators at firm F express some support for activists because they are perceived as pointing out firm failings and pushing for improvement to the environment (F - 41). The media is given this same nod of approval (F - 42). Media influence is seen by executives as carrying economic costs because the media influences stockholders and the financial community and this can directly increases costs if firm F is seen as a bad risk because of it's environmental behavior (F - 43). The media also influences the community's opinion of the chemical industry because of stories about international chemical disasters (F - 44 & 45).

Part Two: INTERPRETATION OF PRESSURES

Interpretation of Government and Regulatory Pressures

Firm F maintains slightly higher environmental standards than is demanded by their license (F - 46). Higher standards are built into the firm's environmental behavior so that the firm has a buffer in case of an incident (F - 47), and this is explained by an executive as being an ethical approach. The firm is also strict about enforcing expected environmental behavior by employees. The image that is offered by one executive is that although the firm looks calm and collected on the surface, just like a duck they are "paddling like hell" to keep up with regulation and expected regulation (F - 48). Fortunately for firm F the government is open to discussion about the interpretation of the regulations. A change in thinking is evident, with government seeking the assistance of the firms in setting priorities for environmental achievement (F - 49). Everything is seen as being open for interpretation and negotiation, with regulation not being black and white (F - 50). Even expectations regarding what to report and when to make these reports are somewhat confusing (F - 51 & 52).

Regulations are changing, but the government is seen as needing the cooperation of business to achieve compliance (F - 53). Government asks for input on pending regulation (F - 54), either directly from the firm or through various Industrial organizations (F - 55). Government attitude toward the firm is understood by firm executives to be affected by the relationship history between the specific firm and the government (F - 56). Regulation is getting tougher, as is testing, and this is not seen as an unreasonable demand (F - 57). Regulation changes have a more legalistic slant than they used to have (F - 58), but perhaps this is because most regulations are copied from the United States (F - 59).

Although government is seen as very powerful, government is also seen as largely indifferent to environmental matters, having an economic focus. Government economic plans are even challenged in the courts for their lack of environmental concern, as with the Paddle River Dam (RN-59), and firm F employees believe that little happens because of government environmental concern and intervention (F - 60). The government is seen as having a short term focus, as does the firm (F - 61). Government response to community demand may be done for image reasons and may not be the "right thing" for the environment or the firm (F - 62 & 63). Firm F executives believe that government regulations are sometimes be caught in the middle between pressures from the community and resistance from the chemical firms, with the government trying to satisfy both forces (F - 64). Standards continue to increase, but executives question this continuous regulatory tightening, posing the question "How bad is bad?" (F - 65). This question is seen as demanding a relative answer, depending on where the facility is located, and depending upon what other activities are undertaken in the vicinity. Still, the government does lay out the rules that allow operation in Alberta and the firm tries to abide by these rules (F - 66).

Firm F executives take the view that Alberta Environment is "in the driver's seat here", and makes serious attempts to control the impact of the firm on the community (F - 67). Any negative perception by the community is considered as an impact, and so must be dealt with. Compliance with regulators would be easier if various government departments and levels of bureaucracy within these departments could agree on what is expected of the various firms, and quit fighting among themselves (F - 68). The rules of business operation are changing, and the community and the government and industry are interactively more conscious of good environmental practice (F - 69).

Interpretation of Economic Pressures

Economic factors for firm F fall into two broad categories: risk and liability, and efficiency. The main function of the plant, according to one executive, is to correctly analyze and manage risk to minimize any potential impact on employees or the community (F - 70). Even with frameworks in place for emergency response, risks have not been eliminated (F - 71). A major ammonia release is possible from the facility. Firm F executives are very concerned about their emergency response capability. One driver for this concern is the government, but another influence suggested is firm awareness of global disaster such as Bhophal, which raises the question for executives and operators and community members of "could it happen here?" (F - 72). In theory, poor management of environmental risk factors could lead to facility shut-down, but closure for a health and safety violation would certainly be more probable (F - 73). Although most operators are cautious, serious consequences could still result from a natural disaster such as a tornado, so there is always the possibility of disaster (F - 74).

Firm F executives believe that the behavior of their firm is as good as any other facility in the vicinity, though they are not as "flashy" (F - 75). Efficiency in process is desired. The focus at firm F is on taking care of their stockholders, and a new Vice President has recently been appointed to be responsible for investor relations (F - 76). Behavior is controlled by affordability, which is considered the first test for any behavior regardless of the "rightness" of the behavior (F - 77). Efficiency is essential if the plant is to stay viable (F - 78). Even Dow's twenty-five million dollar closed-loop system is seen to have eventual efficiency paybacks (F - 79), but most environmental behaviors if approached in a cautious manner can have a payoff (F - 80). Even concern with health and safety at the firm can be seen as being a concern with efficient and economical operation (F - 81). Making money is the only motivator for environmental behavior at firm F (F - 82). Operators express the opinion that good environmental behavior is done to escape regulatory fines and punishments, and "it just isn't worth it" to try to get away with poor practice (F - 83).

Interpretation of Internal Pressures

Both operators and executives claim that firm F is more forward looking than in the past, although this future long term thinking is more focused on economic planning and not environmental planning (F - 84). There has been an improved attitude and awareness in recent years (F - 85), but the firm is still playing catch-up compared to the other firms in the vicinity (F - 86). The environmental staff on site still feels as though lost in the firm bureaucracy, and this several years after the establishment of the environment department (F - 87). Operators believe that the firm will sacrifice quality of life for production values (F - 88 & 89), and even operators justify this as "everyone has to have money to live". A firm executive poses the relative question of "what is good behavior anyway?", who then discusses "how much is the right amount of environmental practice" (F - 90), pointing out the futility seen by several executives in trying to determine "rightness" by any system other than economic.

Firm F employees acknowledge that the firm does not achieve CCPA standards (F - 91 & 92), which executives and operators both view in any case as being vague and under-defined, and being stated more as principles than as standards. Much of the CCPA program is seen as expensive window dressing (F - 93). CCPA statements are "motherhood statements" (F - 94 & 95), and so are very hard to disagree with. Still, the CCPA does set quality guidelines and has an excellent reputation, which is seen as a good reason for firm F to seek membership (F - 96). The CCPA also has influence with government regulators (F - 97). The current CCPA emphasis is on environmental behavior and reporting, but firm F expects this focus to change over time and become a focus on competitiveness (F - 98 & 99).

Firm F employees claim that the firm is different from the other chemical firms in the vicinity because their main product is produced in bulk and is organic (F - 100). Firm F executives realize that they are perceived to be not quite as good as the other firms (F - 101), and because of this product focus this perception is thought to be unfair. Other firms are considerably larger and so have larger budgets than is possible for firm F (F - 102). Plus, good behavior is seen as being somewhat relative to the location of the facility, that is, the closer a facility is to an urban center the more critically it's behavior is viewed, and firm F is located on the boundary of a community (F - 103). Firm F executives believe that all firms perform at about the same level of environmental behavior even though the firms promote their behavior in different ways (F - 104). Firm F does little promotion of any kind.

Some firms do have bad environmental behavior, and this behavior by one or two firms colors the public perception of all firms (F - 105 & 106). Marginal firms may be prime candidates for bad environmental behavior simply because they cannot afford better behavior, but also may be driven out of business by the high cost of good behavior (F - 107).

Operators believe that there is much inertia in management ranks (F - 108), and this mitigates against environmental improvements. Firm F has systems and processes in place that do not discourage poor practice, with operators taking the "easy" way through busy shifts (F - 109). Capital equipment expenditures that would improve both productivity and environmental status are often undertaken because the firm still takes a short-term financial payback perspective (F - 110). Operators are convinced that record keeping regarding health and safety and environmental matters at firm F is absolutely honest, even if the numbers are "ugly" and makes the firm look bad - the inference is clear that other firms are less honest in their reporting procedures (F - 111). Operators also believe that a major shift in awareness and concern is underway at firm F because of new ownership, the purchase of a more progressive neighboring plant, and the influx of some management people from the other site (F - 112 & 113). This shift in management may in turn evolve into a more future oriented management focus for the firm instead of the focus apparent now (F - 114).

Firm F operators claim the firm is not a chemical firm even though they produce and use chemicals (F - 115). The employees claim to be in a different business altogether, or at least to have management whose main concern is in a related business with the chemical side of the corporation only being a minor concern (F - 116). The firm is in a bulk business and this main product can be reused and recycled (F - 117). The firm is further along in the manufacturing chain than some other firms, so CCPA membership is less critical (F - 118). Neither suppliers or customers for firm F are CCPA members and so there is less pressure for firm F to become a member, unlike other firms in the area (F - 119). Firm F employees see the firm product as safe, and so different from the products of the other firms (F - 120).

Firm F, despite not identifying itself as a chemical firm, is affiliated with other chemical firms for emergency response (F - 121 & 122). The firm belongs to or participates with industry environmental groups such as Alliance for Responsible Environmental Alternatives (AREA) (F - 123 & 124). Operators acknowledge that better equipment would lead to lower emissions (F - 125), but at firm F equipment is not replaced or improved even though there is a known environmental benefit and the equipment is not particularly expensive (F - 126). Part of the image problem experienced by firm F may be self inflicted because they do not self-promote as much as the other firms do (F - 127).

Requirements for testing are stringent and more testing is being required all the time (F - 128). Attempting to keep up to standards, firm F is in the process of developing an environmental practices handbook (F - 129), but many firm F standards are very casual (F - 130). Environmental behavior is seen as a subset of health and safety (F - 131). Still, better reporting procedures are being developed with operators now expected to make environmental reports (F - 132). This is a change from practice of fifteen years ago when neither employees nor the firm were concerned about minor releases (F - 133), compared to expectations today when investigations take place if releases are noted (F - 134). Emissions reduction is a constant target, and firm F focuses on the departments who have difficulty with compliance to achieve their major improvements (F - 135). This continuous improvement is undertaken partly to convince employees that firm F is credible and progressive, but also because required by various government agencies (F - 136). Firm F reports everything to the government (F - 137). All of this reporting and monitoring is sometimes resented by the operators (F - 138).

Irresponsible customers can also effect the reputation of the firm (F - 139), and so the firm makes some attempt to assist customer firms with their environmental problems.

Firm F has over eight hundred staff but has a proportionately smaller safety, health and environmental staff than any other facility in the vicinity (F - 140). This leads in part to operator skepticism about management's commitment to safety and the environment (F - 141). The firm does discipline workers for careless work, and while some see this as being in the operators own best interest (F - 142), others believe that this discipline works against honest reporting because workers are afraid of the disciplinary action that the firm might take (F - 143 & 144). The posted vision statement of the firm is often not followed by operators (F - 145), and some operators believe the vision statement to be an attempt of brainwashing by management (F - 146).

Interpretation of Community Pressures

Firm F executives appreciate that the history of the chemical industry is ugly and incidents still occur on occasion (F - 147). An expectation of firm concern with image and community communication would seem a logical extension from this history, but this is not the case (F - 148). The firm has recently appointed a new VP of community relations, but the dual function also includes investor relations, which is expected to receive most of his attention (F - 149). The firm is doing more community consultation, partly because this is mandated by the government (F - 150). A Community Advisory Panel has been established, although partly a carry-over from the recent acquisition (F - 151). The most recent move by firm F has been an increase in Safety, Health and Environmental staff (F - 152), although a cynical employee suggests that firm F concern is more about image than actual behavior change (F - 153). There was a perceived shift in concern about social responsibility after the takeover (F - 154), and improved behavior is believed to protect the firm first, then the community and the stockholders (F - 155).

Firm F employees are convinced that the community is not concerned about the facility (F - 156). This could be because of the long-term presence of the firm (F - 157) and the public response might be quite different is the facility was closer to an even larger urban center (F - 158). Although the community is passive the firm is not in a vacuum because of special interest groups, and employees, and other stakeholders who all influence the firm (F - 159). The community is believed to be more concerned about other firms in the area (F - 160). Operators suggest that environmental consequences cannot be confined within the facility boundaries (F - 161), and perhaps management ignores the community only because of a combination of arrogance and awareness of the firm's economic clout in the local community (F - 162). Whatever concern is expressed by community members is seen as mostly being the individual concern of some community members, and not the concern of the whole community (F - 163).

The community is believed to be more concerned with economic matters than environmental matters (F - 164). The community accepts environmental / economic tradeoffs (F - 165 & 166), but is very concerned about economic factors such as jobs and development (F - 167). The "correct" environmental / economic balance is often determined by the individuals in leadership positions who are currently working in firm F (F - 168).

Part Three: INDICATORS FOR FIRM F

ECONOMIC
COMPARATIVE EXPRESSED CONCERN

EFFICIENCY CONCERNS	not mentioned	Low	Med	High
Efficiency (less waste) is also a lower liability	F			
Large projects cause stalling in small projects	F			
Firm wants efficiency in environmental spending			F	
Improvements become more expensive over time	F			
Being pro-active not that expensive	F			
Environmental projects usually don't show return		F		
Some behaviors very expensive but must be done				F
LIABILITY CONCERNS				
Risk management because of liability awareness				F
Economic analysis is only meaningful analysis				F
Pressures from banks and insurance companies	F			
Personal liability			F	
Liability is a future economic cost	F			
Environmental performance impacts economic performance	F			
Better systems give lower plant liability	F			
Liability concerns is large driver of behavior		F		
COST AND CONSTRAINT CONCERNS				
Production is the number one priority				F
Connection between large firms with big budgets and Env beh				F
Firm must be efficient and make money, cost efficiency				F
Making money is the only motivator				F
Financial cost of environmental behavior is huge		F		
Must spend on environmental behavior or close down				F
Open cheque book for environment	F			
Benefits from good E behavior more than economic	F			
Impacts stockholder confidence, financial constraints, budgets				F
Aware of firm economic power in community				F

GOVERNMENT	COMPARATIVE EXPRESSED CONCERN			
POWER OF REGULATION				
Regulation establishes level playing field	.F			
Government controls timing of regulatory change				.F
Regulation is number one driver in short-term				.F
Regulation safeguards community and environment	.F			
Regulation is expensive to firm and government, not needed	.F			
Regulation will get tougher and broader, could shut you down				.F
MOTIVATION OF GOVERNMENT FOR REGULATION				
Government afraid of public, responds. wants to look good			.F	
Govt hands-off to environment, economic concerns			.F	
Env awareness and tech knowledge drives govt			.F	
FIRM DEALING WITH REGULATION				
Continuous improvement, pro-active, create buffer			.F	
Interpretation of regulation as important as regulation				.F
Govt negotiates on regulation, personal history and trust				.F
Report honestly, report everything				.F
Firm and government face the same pressures			.F	
Worried about meeting current regulation, fines for violations				.F
GOVERNMENT COMPETENCE				
Government ineffective and incompetent		.F		
Industry could be self regulating, leads govt	.F			
Regulation irrelevant, firms regulate themselves		.F		

CUSTOMER	COMPARATIVE EXPRESSED CONCERN			
CUSTOMER SATISFACTION				
Customer is the number one stakeholder and driver	.F			
Can win awards for customer satisfaction	.F			
Need good environmental behavior for customer satisfaction.	.F			
FIRM MUST EDUCATE CUSTOMER				
Customer needs to be educated by firm		.F		
Customer needs to understand firm position in Industry		.F		
Help customer with safe product usage			.F	
WHAT DO CUSTOMERS WANT				
Customer may seek the lowest price	.F			
Recognition for Environmental excellence a competitive edge	.F			
Quality product and lower price is the real strength of the firm	.F			

COMMUNITY
COMPARATIVE EXPRESSED CONCERNS

POWER OF COMMUNITY

Need to be pro-active to get message out to community		F		
Need public on your side. public sets ultimate standard	F			
Community can influence government	F			
Try to keep the public satisfied, answer their concerns		F		
Community is powerful and can punish firm		F		

PUBLIC EXPECTATIONS, PASSIVITY

Public expectations are constantly increasing		F		
Community concern is mostly health, safety and Economic				F
Public is passive, ignorant, and doesn't care			F	
Public is afraid, emotional. and concerns are personal		F		

IMAGE AND PUBLIC RELATIONS

Firms have negative public image, seen as all the same				F
Firm must be a good neighbor, contribute to comm.		F		
Public relations function is critical	F			
Concern about activists and media		F		

PUBLIC BEHAVIOR AND INFORMATION

Community pollutes worse than the firm, firm safer than home		F		
Community learns from employees, employees parts of comm		F		
Firm learns from stakeholders, public not single entity	F			
Disasters anywhere in world raise public consciousness			F	

INTERNAL
COMPARATIVE EXPRESSED CONCERNS

EMPLOYEES AND THE UNIONS

Concerns with the Unions	F			
Employee and peer pressures			F	
Pressures on employees from family and friends	F			
A satisfied employee is a happy employees			F	
Firm disciplines workers for poor environmental performance.			F	
Firm supplies an abundance of information for employee	F			
Firm has many long-term employees, many senior staff	F			

FIRM INTERNAL SYSTEMS, AUDITS

Firm audits safety, health and environmental behaviors	F			
Firm audits suppliers for safe environmental behaviors	F			
Much autonomy from head office	F			
Spending huge amounts of money sends a message	F			
Responsibility includes timely behavior	F			
Internal systems hinder environmental improvement				F
Firm has internal competition for environmental funds	F			

VALUES, CULTURE, LEADERSHIP				
Vision statements, personal responsibility, firm values	.	.F	.	.
Env awareness of senior executives, responsible culture	.F	.	.	.
Have a longer term and more Env. focus than before	.	.	.F	.
Responsible Care Program, CCPA standards	.	.F	.	.
Firm a model for the Industry, performance pride	.F	.	.	.
Number one priority health and safety, safer workplace	.	.	.F	.
INTERNATIONAL AWARENESS				
International pressures and awareness	.	.F	.	.
Firm has an awareness of international incidents	.	.F	.	.
International pressures and standards affect firm practice	.	.F	.	.
GOOD BEHAVIORS ALREADY ACHIEVED				
The best projects are already done, technological limits	.F	.	.	.
Env. incidents can be contained, preventable accidents	.	.F	.	.
Technology allows change and improvement	.F	.	.	.
OTHER FIRMS				
Insecurity and inferiority complex about other firms	.	.	.	.F
Help other firms with environmental advice and help	.F	.	.	.
Best achievement by any firm should set new standard	.F	.	.	.
Pressures from other firms, competitive advantage	.	.	.	.F
More pressure on large firms because small firms lack $	.	.	.	.F

Part Four: FINAL COMMENT FOR FIRM F

Firm F is concerned about government and economic factors. These major concerns are followed by internal influences and community concerns. Interest in customer needs was low.

Firm F respondents were alone of all firms in expressing high concern about meeting current regulatory standards, or even getting fines for non-compliance. The firm also expressed high concern for how regulatory legislation was interpreted, and believes that this interpretation was based on governmental-firm mutual history and trust. Firm F executives claim that the firm reports absolutely everything to government, relevant or not. Firm F strongly believes that regulation is the number one driver, at least in the short run, and that government controls the timing of regulatory change. Firm F employees believe the government is afraid of the public, so wants to look good in public perception about environmental matters. The government has a much stronger economic than environmental focus. Firm F executives believe that the firm and the government face the same basic pressures from communities and others. Unlike most other firms, firm F respondents did not think that the government was ineffective and inept, and did not make any mention of the industry being able to regulate itself.

More than any other firm, firm F expressed great concern over the cost and constraints facing industry in achieving correct environmental behavior. Alone among the firms, firm F executives strongly believe that production should be the number one priority of any firm, and believe that making money is the only motivator for the firm. Another economic factor only mentioned by firm F is the economic clout the firm has in the community, and so the firm is able to perhaps bend certain expectations of the community because of that power. Firm F believes certain behaviors must be achieved regardless of cost, and the driver for this is that closure is a real possibility without this behavior. The firm faces real financial constraints, and part of this is investor need for financial returns. The firm feels itself boxed in that both excellent environmental behavior and better than average financial returns are required, and the difficulty of balancing these competing demands is seen as challenging. All analysis must be economic in firm F, as any other analysis is meaningless, and this means that non-economic benefits to the firm or the community are seem as largely irrelevant. Some strong concern was expressed about firm liability, and personal liability was also noted as a concern.

The strongest category involved with internal influences centered on other firms. Firm F is alone among the six firms in expressing feelings of insecurity about their performance relative to the other firms in the area. This sense of inferiority is an incentive to improve behavior. Firm F executives feel pressures from other firms for improved behaviors, and also feel larger firms are given more difficulty because the communities or the government feel they can afford extra environmental behavior. Firm F operators are alone in expressing the thought that internal systems and structures actually get in the way of improved behaviors. No mention is made of internal audit systems, or auditing the performance of suppliers. Practically no mention is made of appropriate behaviors already being achieved.

Firm F expresses little concern about the power of the community, or any sense of the need to be good neighbor, having an effective public relations voice, or even concern about the media or activists. Firm F believes that all firms are seen as the same by the communities and that all firms share a negative public image. Firm respondents also believe that community concern is essentially in health, safety and economic matters, and not much regarding the environment. Firm F respondents express little concern with customer satisfaction or needs although some interest was expressed in helping customers to use the firm's products safely.

3.8 CASE STUDY SUMMARY

3.8.1 OVERVIEW

Stakeholder literature (Freeman, 1984) identifies the stakeholders relevant to most corporations, and confirmation of specific stakeholders of chemical firms and their expectations of the firm has been achieved through the data collection and initial analysis stages of this research project. Five main pressures that affect corporate response have been identified from the data, and these pressures evolve from a collection of stakeholders. Understanding of how these pressures are interpreted and understood by the executives and operators of the firm is much enhanced by the detail of this research, and the connection between these stakeholder pressures and corporate behavior is much clearer. For example, chemical firms are very concerned about future liabilities and take action to avoid these costs, and this is much more specific than a generic awareness of economic concern.

One purpose of research is to arrive at generalizations that assist in better understanding of the firms or the industry involved. Generalized understanding is reached about the importance of various pressures and how these pressures influence and constrain corporate choice in chemical firms, but this research was unable to define and describe a 'typical' chemical firm. There is some generic corporate response apparent in the chemical industry, but this is limited to such general beliefs as a broad desire for economic efficiency in whatever endeavor including environmental behavior, and general agreement that environmental compliance with regulation is very expensive. A generic firm in terms of stated concern about certain perceived pressures can be created from the data collected (see Appendix I), and even this shortened list of important indicators does not fit all firms, but without a deeper understanding of specific corporate history, culture, and local and head-office leadership vision, any interpretation as to the importance and weight given to each of the pressures cannot be judged. Factors and considerations influencing corporate behavior can be identified, but behavior resulting from these concerns cannot be predicted.

3.8.2 REVIEW OF THE FIVE PRESSURES

This research identifies five major pressures which are considered important by the chemical firms in this sample. Corporate environmental behavior may include action favorable to the natural environment, but corporate environmental behavior also includes not taking action, that is, the pressures may be identified and recognized but interpreted as being minor, and so not worthy of action. Some pressures such as consumer pressure or legitimation by the community which are considered major by some firms are considered minor by other firms. Analysis shows that the various firms weigh the significance of most pressures in different ways, and this research explains these firm specific weightings.

All six firms identify economic pressures, regulatory pressures, community pressures and internal pressures as major influences on firm behavior. Firms C and E also identify customer concern as a large pressure (see Table 3 in Appendix J). Firms A and B consider the community the major pressure influencing their behavior, and express much concern about meeting the needs and concerns of the community. Firms C and E are concerned about meeting the needs of their customers and express great concern about image and reputation issues as interpreted by these customers. Firm F is mostly concerned with economic and regulatory pressures, resents spending money on environmental behavior and is very serious about meeting government regulatory compliance standards. Firm D is almost equally concerned with economic, government, and community pressures.

Using the government / regulatory pressure as an example, the benefit of focusing on a single industry instead of several industries is confirmed. Regulation and government expectation on all six firms is technically exactly the same, yet the percentage of expressed concern (Table 3) ranges from 13.5% in firm C to 31% in firm F, from the least important of the five pressures in firm C to the most important pressure in firm F. There are many possible reasons for this spread of expressed concern but one factor is that firm F sees itself to be the least proactive of the six firms regarding environmental behavior and admits having the most difficulty in achieving compliance with regulation. Firms C and E, as well as having a consumer focus, both consider themselves industry leaders, setting an example far beyond the minimum standards set by regulation. The pressure and demands from government are exactly the same for all the firms, yet the interpretation of the importance of the pressure and the response to the pressure both in behavior and attitude is idiosyncratic to the specific firm.

ECONOMIC CONCERNS

The degree of concern with Economic pressures was evaluated by examining firm concern with each of twenty-five indicators (see Appendix G). These twenty-five indicators were categorized into three major categories: seven indicators for 'Efficiency' concerns; eight indicators for 'Liability' concerns; and ten indicators for 'Cost and Constraint' concerns. These categories emerged from coding the indicators, and the indicators emerged from the data.

Economic: Efficiency concerns

Efficiency in environmental spending and making profit is a goal desired by all firms (Indicator 18) and this was the only indicator of the one hundred indicators which was declared a high concern by all six firms. The firms are all very conscious of the need to produce profit as well as product, and the environmental cost to achieve compliance with regulation is viewed as an impediment to this profit making by some of the firms. In several firms, particularly firm F, the view about profitability and environmental protection is that they are opposites and that good management includes making 'appropriate' trade-offs to create a proper balance of enough environmental behavior while achieving near-maximum returns. Money must be spent on environmental projects and other behaviors (Indicator 21), and the general consensus among the firms is that environmental projects usually do not show a return (Indicator 6). Most firms agree that environmental behavior is very costly (Indicator 20), and does not even return the capital expense. The firms are unhappy that these behaviors are compulsory within specific time frames instead of being expressed as goals to be achieved at the firm's discretion (Indicator 7). Costs of inadequate environmental behavior can include sanctions on the firm for violations of laws or regulations, lawsuits, negative community reaction to proposed plant sites or expansions, lost executive time managing environmental issues, lost employee confidence, and even personal employee liability. Most executives are in compliance mode and do not acknowledge that short-term costs might be outweighed by long-term benefits. Sometimes these benefits are recognized as societal benefits at corporate and investor expense. Ecological sustainability is rarely mentioned, and never as a firm responsibility.

Economic: Liability concerns

Personal liability, when mentioned, looms large in management consciousness (Indicator 11). This data confirms employee awareness that new environmental requirements include increased civil and criminal liability for both individual and companies found negligent or non-compliant. Dechant and Altman (1994) claim this change in regulation requires greater environmental awareness from all levels of management, and this data concludes that greater awareness is present from operators as well as management levels. All firms except firm F accept that current behavior can become a future liability (Indicator 12), and that a positive correlation exists between good economic performance and good environmental behavior (Indicator 13). Economic benefits of environmental compliance or proposed modifications are rarely mentioned, but improving environmental performance is viewed by several firms as a defensive stance that avoids large fines or other economic costs. Because of liability concerns, many respondents from several firms express the opinion that it is wise to err on the side of caution, and this leads to improved environmental performance, as well as increased pressure on other firms (particularly supplier firms) for improved quality and safer processes. An off-setting factor alluded to several times in the data is that the future economic and regulatory requirements on firm performance are so uncertain that the uncertainty itself leads to short-term practices and policies.

Economic: Cost and Constraint

Only firm C claims to have an open cheque book for the environment, and an acknowledgment that the benefits of good environmental behavior are broader than only economic receives only modest support (Indicator 22). Pollution prevention is often suggested as a win for both the environment and the corporation. Respondents believe the prevention of pollution offers the best environmental solution, and (unlike pollution control or treatment or disposal) has a positive long-term economic benefit to the firm. Most firms mention pollution prevention, but aside from firm B (closed loop-water system) were having difficulties in achieving major process change because of short-term cost issues. Firm F particularly maintained an economic focus, believing that production was the number one priority (Indicator 16), making money was the only motivator (Indicator 19), and that firm specific cost/benefit economic analysis is the only meaningful analysis (Indicator 8).

This data suggests that ecological or environmental awareness in a philosophical sense is not needed for a firm to be considered pro-active or "green" regarding the environment. As an example, pollution elimination at source not only reduces waste, the environmental benefit, but also saves on waste and so reduces cost, the financial benefit. Traditional cost / benefit analysis is almost always done by the firm, even though the pollution reduction or elimination will likely be "sold" as an environmental move. Side benefits of pollution elimination include lesser cost for pollution control equipment and personnel, and possible escape from government regulation, inspection, or interference with firm management. A conviction that massive change resulting in sustainability is necessary by either industry or society to safeguard the global or local ecology was not suggested by any of the firms. A long-term environmental stance is hindered by the uncertainty caused by rapidly changing technology, and the risks of changing regulations becoming either harsher or easier, among other factors. Being pro-active environmentally can be viewed as risky as well as expensive.

GOVERNMENT AND REGULATORY CONCERNS

Eighteen indicators in four categories were used to determine corporate concern with government and regulation. The four categories are: 'Power of Regulation' with six indicators; 'Motivation of Government to Create Regulation' with three indicators; 'Firm Dealings with Regulation' with six indicators; and 'Government Competence' with three indicators.

Government: Power of Regulation

Four firms express medium or high conviction that government regulation is the main driver for corporate environmental action in the short-term (Indicator 28) and three of the four firms believe that government controls the timing of regulated change (Indicator 27). Most firms believe that regulation will get tougher and broader to cover more aspects of emission or other standards (Indicator 31). There is no consensus on whether government regulation is needed in the first place (Indicator 30). Only one firm expresses the opinion that regulation creates a level playing field in terms of equivalent expected behavior for all firms (Indicator 26).

Government: Firm Negotiation of Regulation

All firms believe that government and firm interpretation of the regulations takes place on a firm by firm basis, with this negotiation largely founded on firm history and reputation in terms of compliance, and the degree of trust the government has in the firm (Indicator 37). Two firms are firmly convinced that interpretation of the regulations was as important to firm behavior as the regulation itself (Indicator 36), suggesting that government regulation is viewed only as a guideline for recommended practice, and not a standard to be met without exception. Costs of compliance with the installation of pollution controls is believed to increase over time, and so early compliance and pre-regulation compliance with regulation or procedure is seen as prudent management by some firms. The firms believe that continuous improvement (Indicator 35) is more important than any absolute degree of achievement. Having an image of being pro-active about environmental behavior is considered by some firms to be more important than any specific behavior - that positive attitude toward improvement is perhaps more important than performance, especially regarding government interpretation of firm behavior. Costs of non-compliance are broader than only financial, particularly if interpreted by government personnel as proof of corporate indifference to perceived environmental and social benefits.

Government: Motivation of Government

The government's negotiable stance regarding environmental regulations results in part in a skeptical attitude on the part of the firms toward the sincerity of the government regarding environmental programs. Most firm executives and employees believe that economic concerns are more important to the government than are ecological concerns, and that environmental concerns will be sacrificed for economic benefit. The main driver for the government is fear of the public (Indicator 32), and most firms express the opinion that the government wants to look good to the public, but that real environmental concern is of lesser interest to the government than the appearance of concern.

Only firm F is concerned about being able to meet government regulations (Indicator 40), with most firms expressing low concern about compliance and most believing themselves to be ahead of government regulation and expectation. Most firms have expectations as to what new regulation they expect in the near and middle term, and some firms (firms B and E particularly) move to introduce environmental improvements ahead of the other firms. There is some cost benefit seen in terms of less compulsion to meet externally imposed deadlines, and also a notion by some firms of setting benchmarks on their own terms that the competition has to meet on the government's terms. The firms complain about how rigorous and expensive the regulations are, yet they express no great concern about meeting these standards. Further, four of the six firms adhere to CCPA standards which are considered by both the firms and the government as more stringent than the government regulations. The other two firms claim near CCPA standards even though they are not members. These higher standards are seen as one means of improving industry reputation with government and the public. The conclusion by some firm executives is that government is following industry standards, and this lag appears to be accepted by both industry and government: as industry raises its own standards, government follows with confirming regulation. Compliance with industry expectation reduces competitive fear between the firms as all firms go through the same changes more or less at the same time.

Government: Government Competence

The government is not granted much respect from the firms surveyed, even being seen by some as incompetent and ineffective (Indicator 41). Most firms believe the industry could be self-regulating and leads the government in terms of standards (Indicator 42), and that regulation is largely irrelevant as most firms regulate themselves (Indicator 43). Flexibility is seen as the benefit of voluntary change, as the individual needs of each firm can be evaluated, and appropriate and cost-efficient choice of methods to achieve firm goals can be chosen by each individual firm depending on their own constraints, capabilities, and interests. These comments about the irrelevance of government contradict earlier statements (Indicators 27 and 28) that the government is the number one driver in the short-term, and controls the timing and rate of changing corporate environmental behavior. This contradiction is a good example of a sub-theme running through much of the data, with the espoused stance of pro-active and enlightened environmental management being off-set by angry and reluctant compliance with regulated behavior that would not likely be undertaken without the external government pressure.

CUSTOMER CONCERNS

The three categories of consumer pressure are combined in this section. Only firms C and E expressed consistent concern with customer satisfaction, a sense of responsibility for educating customers, or even concern with what the customer needed and wanted. Firm E supplies mostly water treatment products to other industrial firms and so is responding to specific customer demands for problem solving. Firm C is broadly based and has a large consumer product orientation. Consumer or customer concerns were mostly not mentioned or of low concern to the other four firms. This finding was surprising, as customer or consumer pressure is often mentioned as an institutional, resource dependency, and stakeholder pressure on the firm. This suggests that portions of the chemical industry are in a mature phase, with established markets and with customers for certain products taken as given.

COMMUNITY CONCERNS

The section dealing with community pressures is in many ways the most interesting. Four categories are found: 'Power of the Community' with five indicators; 'Public Expectations and Passivity' with four indicators; 'Image and Public Relations' with four indictors; and 'Community Behavior' with four indicators.

Community: Power of the Community

Firm F is alone in not believing that the community is powerful and able to punish firms for bad behavior (Indictor 57). Most firms believe they need the publics' support and that the public sets the ultimate standards about expected behaviors (Indicator 54). Most firms believe that pressure from the public influences government (Indicator 55), and so one way to reduce government regulation and enforcement of regulation is to reduce the pressure the government feels from the public. Firm D expressed the opinion earlier (Indicator 39) that the government and the firm face similar pressures, and a large part of this pressure is concern about the community. Most firms express the opinion that keeping the public informed is important to them (Indicator 53), and part of keeping the community satisfied is to answer their expressed concerns (Indicator 56). This data illustrates that many business relationships with the "community" are vague and contradictory, and even difficult to classify as relationships. The community is identified as a stakeholder by all firms, but what this means in terms of the responsibility of the firm to the community is considerably less clear.

Community: Passivity

Although the community is seen as very powerful and so able to influence both industry and government, the community is also unanimously seen by all firms as ignorant, passive, and unconcerned about firm behavior (Indicator 60). This is stated with varying levels of concern. All firms believe the public is ignorant of what chemical firms do, yet this same public is believed to be afraid and emotional regarding chemical firm behavior. The public is seen as afraid yet unconcerned at the same time. Although the public is seen as passive, firms A, B, and C believe public concern is increasing (Indicator 58), and this suggests that the community has power even though not exercising this power, and so firm behavior is somewhat concerned about maintaining a comfortable and quiet community. Most firms express the opinion that greater community knowledge about the firm operation and technological ability leads to greater community confidence about the firm's operation.

Community: Image

Firm B is the outlier in terms of image and public relations concern, because the firm believes the public relations function is critical (Indicator 64), and is also very concerned about the media and activists (Indicator 65). The other firms express less concern with community image or activist power even though confrontation with any pressure group or government agency can be very time consuming, expensive, and damaging to prestige. Benefits of cooperation with special interest groups that could lead to insights and perspectives that in turn could lead to specifics such as cost-cutting recycling or other efficiencies, was not mentioned by any of the firms. Public expectations of chemical firm environmental behavior are believed to be increasing. The firms believe that public concerns are largely emotional and personal (Indicator 61). Firm B suggests that public concerns are more accurately described as large concerns to a small number of individuals and not the public in general.

This data shows very little concern or respect by the chemical firms for activists or the media. Interest groups have long been viewed as a source of pressure for organizations (Selznick, 1957), and recent research claims that interest groups play a "critical role in elevating concern about issues to a level at which there is institutional pressure for corporations" (Greening & Gray, 1994: 476). This sample group of firms is mostly indifferent to both interest groups and media, at least at the local level. This suggests the lack of organized interest groups or informed media able to confront the firms about environmental behavior. The firms are improving their environmental behavior, but not even firm B claims excellent environmental behavior on all fronts at all times, and so the possibility of activist or media pressure is a real though unrealized threat.

Most firms express the opinion that all chemical firms have a negative public image and that the differentiation strategies of the individual firms have largely failed (Indicator 62). This being seen as all-the-same is a perception that most firms are not satisfied with, each believing to some extent that their behavior is superior to the other firms. The firms believe that bad behavior by any firm brings down the reputation of all the firms. As well, chemical firm disasters anywhere in the world, if reported in the media, damages the reputation of all firms (Indicator 69). That the public hears of a "chemical spill" and not a "firm A spill" or "firm B spill" is a complaint made by several firms. The local business media is viewed as inept by the firms, and this is both a help and a hindrance to the firms in that they are neither praised or condemned for their environmental behavior.

Community: Community Behavior

Community and firm interaction is mentioned by most firms as a minor concern (Indicators 67 and 68). Most firms believe that their environmental behavior and environmental awareness is superior to the publics' behavior and awareness (Indicator 66). Despite the poor environmental behavior of the community and the general unconcern expressed by the public to any firm specifically, all six firms see the community as having power, even though this power is not exercised.

INTERNAL CONCERNS

The internal pressure section has six categories: 'Expectations from Employees' has seven indictors, 'Internal Systems and Structures' has seven indicators, 'Organizational Culture and Leadership Vision' has three indicators, 'Firm's Position' (relative to the other firms) has five indicators, and 'Sustainable Vision and International Concern' has three indicators.

Internal: Employee Concerns

Moderate to high concern is expressed by all firms that employees had expectations on the firm regarding environmental behavior (Indicator 71). Executives from all firms believe these expectations from employees mirror broader societal expectations, and the firms feel pressure to satisfy these employee expectations (Indicator 73). Little concern was expressed about the Unions representing the workers in the unionized firms (Indicator 70), and this reflects management belief that Union concern is more about wages and benefits than with environmental concerns. However, there is a growing awareness among operators of the link between good environmental practice and health and safety in the workplace. Some concern for employee families who live close to the workplace was expressed by some respondents (also see Williams, Medhurst, & Drew, 1993). Increased pressure from Unions regarding environmental factors seems possible in the future. Only slight mention was made of any health, safety, and environmental connection by the union members interviewed in this research.

Internal: Internal Systems

A consensus was not reached by the firms regarding internal audits and environmental performance audits. Three firms are sure that spending huge amounts of money "sent a message" to employees, investors, community and government that the firm is serious about their environmental behavior (Indicator 80). Several firms believe that social perception often counts as much as financial statements when investors are judging investment decisions, and this encourages more environmental behavior. Only employees of firm F express the opinion that internal systems and structures at their firm hindered the achievement of environmental objectives (Indicator 82).

Internal: Leadership and Culture

The firms achieve some consensus on indicators regarding values and leadership in the firms. All firms claimed that their number one priority was health and safety, and creating a safer workplace (Indicator 89), which contradicts earlier statements that production is the number one priority (Indicator 16), or that making money was the only motivator (Indicator 19), or that government regulation is the only driver in the short-term. Unlike findings from other research (Logsdon, 1985), the firms although supporting the importance of leadership vision and commitment gave more credit for corporate environmental behavior to corporate culture and history (Indicator 85). Firm A, for example, was emphatic that having long-tenured top management was a major factor leading to longer-term strategic thinking about environmental practice (Indicator 76). Firms all self-identified themselves as pro-active to some extent, or at least to the extent possible given financial constraints (Indicator 84). Personal responsibility is also noted as a driver, with all employees expected to share in the achievement of environmental goals. The Responsible Care program of the CCPA is cited as an influence on management (Indicator 87).

Internal: International Awareness

Most firms express awareness of international incidents (Indicator 91) and consider that international standards and pressures affect the firm (Indicators 90 and 92).

Some firms express the opinion that there are technological limits to the degree of improvement in environmental behavior still available to the firm, and that the most significant improvements have already been done (Indicator 93). Most firms believe that technology allows for even greater firm environmental improvement (Indicator 95), yet the limits of technological improvements are fast approaching.

Internal: Inter-firm

Firm F was alone in expressing concern that the firm's awareness lagged behind the other firms in the environmental area (Indicator 96), but also express the opinion that the firm's behavior is in fact just as good, and it is a smaller public relations ability that causes the perception of lower performance. Most firms express a willingness to share environmental information with other firms (Indicator 97), yet also talk of competitive advantage (Indicator 99). Some firms express the opinion that best performance by any firm should set the new standard for all firms to meet (Indicator 98).

CHAPTER FOUR - ANALYSIS SUMMARY

4.1 INTRODUCTION OF THE DUAL STORYLINES

This research identifies the stakeholders (Freeman, 1984) that are considered relevant by the chemical firms in this sample. Each of these specific stakeholders has specific expectation on the firm, and five main pressures that affect corporate response have been identified from the data (see Appendix G). These pressures, although generic to all firms in the sample, are viewed idiosyncratically and their relevance judged in different ways by each firm (Appendix H and J). To be clear, each firm claims that all pressures are important, but the degree of importance and the actions taken because of each pressure, or cumulative because of all pressures, is different for each firm. Understanding how these pressures are interpreted and understood by the executives and operators of each firm is enhanced by the grounded nature of this research. The connection between interpretations of stakeholder pressures and corporate behavior is much clearer because of this research. For example, some chemical firms are very concerned about future economic liabilities and take action to avoid these costs, yet other firms take little action although aware of these same liability concerns. Although stakeholder theory has been aware of firm economic concern as a driver of behavior, this research raises awareness of potential liability as a more specific type of economic concern, and also emphasizes the importance of firm interpretation of these pressures.

Research often seeks generalization that assists in understanding all firms in a given industry. This research, having identified specific pressures, searched for understanding about how the interpretation of these pressures influence and constrain corporate choice. There is a degree of generic corporate response in the chemical industry, but although definition of such a 'typical' firm is possible (see Appendix I), this generalization is not useful in terms of understanding or predicting future behavior. For example, general beliefs are present that economic efficiency should be achieved in whatever endeavor is undertaken including environmental behavior, and there is general agreement that environmental compliance with regulation is very expensive. A generic firm in terms of stated concern about certain perceived pressures can be created from the data collected, but this list of indicators mentioned as a concern by all firms should not be generalized to other firms or industries. A deeper understanding of specific corporate history, culture, and local and head-office leadership vision is required to achieve an understanding as to the importance and weight given by each firm to each of the pressures. Predictions about specific firms can be offered (if X then likely Y for firm A), but making a general prediction for all firms in the sample is risky, and to extend this prediction to chemical firms with different external and internal environments is simply foolish.

Although a consistent storyline regarding environmental behavior was aggressively sought in this research, a single storyline was not found among the firms regarding corporate environmental behavior. On the one hand, values and behaviors are expressed that support a vision of environmentally benign behavior which leads to a model where the firm consistently and competently achieves ever-more-stringent environmental objectives. On the other hand, behaviors and values are also expressed that support a business-as-usual model that is in complete opposition to these sustainable values. The chemical industry expresses values and behaviors for both sustainable behaviors and unsustainable behaviors, and these values and beliefs are contradictory to each other. These contradictions are often found within the individual firms.

Two storylines are offered simultaneously by the six firms in this sample. One storyline is relatively new, glimpsing a sustainable future supporting environmental values and behavior where ecological and environmental awareness is a major driver of firm behavior. The other storyline follows a more familiar route of corporate success being evaluated strictly by economic values and driven by competitive pressures. For convenience in this research these story-lines are termed the sustainable behavior (SB) path, and the business-as-usual (BAU) path. These two story-lines are found in all firms, running parallel to each other, and only occasionally converging. This dichotomy of paths is not new.

> "We now stand where two roads diverge .... The road we have long been traveling is deceptively easy, a smooth superhighway on which we progress with great speed, but at the end lies disaster. The other fork of the road - the "one less traveled by" - offers our last, our only chance to reach a destination that assures the preservation of our Earth" (Carson, 1962: 277).

Both storylines are claimed as valued by corporate respondents.

The balance of this section will explain how these opposing values and behaviors are understood by corporate respondents, and how they are explained and dealt with. Examples will be offered to illustrate this tandem story-line for each of the five pressures identified through coding practice.

4.2 REVIEW OF THE FIVE PRESSURES

This research identifies five major pressures which are considered important by the firms in this sample. Corporate environmental behavior includes behavior both favorable and unfavorable to the natural environment. Corporate environmental behavior sometimes includes not taking action, that is, the pressures are identified and recognized but are interpreted as being minor and not worthy of action. Some pressures such as consumer pressure or legitimation by the community which are considered major by some firms are considered minor by other firms. Analysis (see Appendix J) shows that the six firms each weigh and balance the significance of the five pressures in different ways. Each of the five pressures can be viewed from the perspective that encourages sustainable behavior (SB) and also from the perspective that encourages business-as-usual (BAU). These storylines are rarely compatible, and are often in direct opposition to each other.

All six firms identify economic pressures, regulatory pressures, community pressures and internal pressures as major influences on firm behavior. Firms C and E also identify customer concern as a large pressure (see Table 3 in Appendix J). Firms A and B consider the community the major pressure influencing their behavior, and express much concern about meeting the needs and concerns of the community. Firms C and E are concerned about meeting the needs of their customers and express great concern about image and reputation issues as interpreted by these customers. Firm F is mostly concerned with economic and regulatory pressures, resents spending money on environmental behavior, and is very concerned about meeting government regulatory compliance standards. Firm D achieves a balance of concern with economic, government, and community pressures. Each firm at least mentions each of the five pressures. The SB and BAU story-lines can be seen as being a continuum from sustainable to non-sustainable practice, and although each firm is found on the continuum their placement varies considerably.

Using government and regulatory pressure as an example, the benefit of focusing on a single industry is confirmed. Regulation and government expectation on all six firms is exactly the same, yet the percentage of expressed concern (Table 3 in Appendix J) ranges from the least important of the five pressures at 13.5% in firm C to the most important pressure at 31% in firm F. Even though pressures and demands from government are the same for all the firms, the interpretation of the importance of the pressure and the response to the pressure both in behavior and attitude is idiosyncratic to the specific firm.

The following section analyzes statements made by the respondents in this research and confirms two very distinct storylines. These story-lines are documented with quotes from Appendix A - F, which are identified by Firm and quote number (i.e. A - 230 or E - 118).

4.2.1 Economic Pressures

The degree of concern with Economic pressures was evaluated by examining firm concern with each of twenty-five indicators (Appendix G). These twenty-five indicators can be viewed from the perspectives of either encouraging SB or encouraging BAU.

The BAU story-line is especially strong when respondents discuss economic issues. Economic 'realities' are presented as a given that must be satisfied before any other interests can be considered. 'Reality' is true or false to the degree that it fits well with the dominant economic archetype or paradigm (Kuhn, 1962), and the consequence of this 'reality' is that right and wrong are defined within the boundaries of this economic paradigm. Concern with environmental behavior is seen partly as an over-reaction by government and certain community members, and 'reality' may return as these stakeholders appreciate the necessity for economic success. Environmental concern is seen as a short-term storm that simply needs to be ridden out.

> D - 199. As I say, maybe the recession was a bad thing, but maybe there was some good things. It might swing things a little bit more to reality. You look back in late 70s when everything was distorted. Like, we're going to run out of oil by 1990. There was a huge swing, and now it's sort of come back. I think that's what will happen environmentally. There'll be some over-reaction and then things will go back.

Confidence was also expressed that if higher consumer prices are caused by environmental behavior and this becomes apparent to consumers, that public support for environmental concerns would weaken. Some respondents believe the public does not understand that higher environmental standards will likely translate into higher consumer prices.

> D - 202. I think that, overall, we're still going to have the alarmists, we'll never get away from them. But I think it will die because people just won't be interested. Like the politician won't get in because he says: "I'm going to get tough and make zero discharge for everybody." People are going to say he can't do that. They don't care. They don't want the prices to go up anymore. I think that the majority see it that way.

Respondents believe that demands for specific environmental behaviors from the community or government should not interfere with the firm's primary objective of making profit. Progress is also limited by the human resources of the firm.

> A - 114. It's as fast as we can basically go. ... It's no good bankrupting the business. But I think we've made substantial progress and I think it's as fast as we can go with the resources we've got. And that's people resources. I mean with some of these engineering projects you can only do so many. It takes time. So yeah I think we're doing it as fast as we can to get there.

Stockholders must be taken care of regardless of any other consideration. There was no mention of 'ethical' investors, those who make investments in 'green' firms that are designed to be good to their bank balance as well their conscience (White, 1995).

> C - 125. Well, we know that unless the stockholders get a return, there won't be a business.

> F - 16. Well, number one, corporate profit is the bottom line, and always will be. If they are not giving a return to their shareholders, they are not going to be in business very long.

Most respondents viewed environmental behavior as an expense that returned very little to the company except permission to remain in business.

> C - 126. There's no question that's the challenge. I mean, we could become the most environmentally friendly company in the world, and go broke in the process.

Efficiency in environmental spending so as to not interfere with making profit is a goal desired by all firms, and was the only indicator of the one hundred indicators that was declared a high concern by all six firms (Appendix J). Several firms view profitability and environmental protection as opposites. Good management to these firms includes making 'appropriate' trade-offs to create a proper balance of 'enough' environmental behavior while achieving near-maximum returns. Environmental behavior is seen by many as a cost item with very little economic return, resulting in demands for efficient operation to offset the cost of environmental behaviors. Trade-offs are recognized between good behavior and cost, with 'perfect' behavior likely leading to facility closure.

> B - 37. We have a program right now, the numbers are rough, but about a ten million dollar emission reduction program on our nitrogen oxide. And there is no return for us ...

> B - 196. So, there's that conflict of how I'd like to see no emissions to the air and water, but I probably wouldn't have a job then: Canada is perfect... we have the cleanest country in the world, but we're all unemployed. So it doesn't do us any good. So, there's always been a trade off. The more you see, the more you realize that there are these trade-offs.

> E - 45. If they (some really small chemical firms) were complying to everything to the letter, they couldn't financially exist.

> F - 77. So it still goes back to economics. It might be the right thing, but if you can't afford it, that's the first test.

Respondents claim that making money is the only motivator for firm behavior.

A - 2. Money. I mean that is why we are here.

B - 38. If it doesn't make money, it's not good business.

D - 93. What's the point of our firm ? What's the point in Dow or Dupont? It's real crass, but to make money. They don't make money, they're out of business.

F - 13. They're in there for the money.

The coordination of environmental programs is mentioned as an additional expense on top of actual line item expense for improved environmental behavior. The soft costs of management time and attention are identified as major costs.

> B - 197. But I think the people who are making decisions are stuck between "I think I should do this" and "business is business". Certainly I'd like to reduce this emission, but if takes that expense, they're going to say forget it. It's far too expensive for what you get out of it. It goes around in a circle.
>
> D - 58. When you look at even our company, our top executives are spending a lot of time coordinating things. A lot of time and energy spent not running the business, but defending the business. You take that across all businesses and that's a huge cost.

Given that capital must be spent to comply with regulatory standards, the hope is that this capital will achieve some economic payback. The effective and efficient process to achieve compliance is searched for. This process driven strategy is expected to achieve competitive cost advantages through saving on energy costs, materials and resources, and also to reduce emissions and effluents. This is essentially pollution prevention.

> A - 6. Management has said well OK if we're going to be here another forty years we'd better spread out this investment and we'd better do it wisely. And, that's really where the impact comes in on the business. ... How do we find smart ways to do it?

Again, the environmental expense is seen as a cost of staying in business.

> A - 95. Now-a-days we've been spending from our capital budget anywhere from 30 - 40% every year on environmental issues. Now, that's a big chunk of money. That isn't capital spending that's going to give you a return on your investment. It is just going to keep you in business.

Respondents agree that environmental projects usually do not show a return and that environmental behavior is very costly. Because of the high cost and the low return, most believe that the only sensible route for firms to take is to do only what is required. The firms are unhappy that these behaviors are compulsory within specific time frames instead of being expressed as goals to be achieved when convenient and cost-efficient for the firm. An off-setting factor alluded to several times in the data is that the future economic and regulatory requirements on firm performance are so uncertain that the uncertainty itself leads to short-term practices and policies.

> A - 104. Like we're not going to spend any more money than we need to spend unless we understand how we're spending it.

Several respondents noted that regardless of interest, awareness, or desire, that the firms can only do what is economically feasible. Without economic success no other behavior including environmental behavior can be undertaken. Most executives are in regulatory compliance mode, and few suggest that short-term costs might be outweighed by long-term benefits. Sometimes these benefits are recognized as societal benefits although at corporate and investor expense. Ecological sustainability is rarely mentioned, and never as a firm responsibility.

The economic BAU story-line seems overwhelmingly strong, yet, the SB storyline is also present and discussed as viable. Environmental behavior is claimed by some to not be expensive.

> E - 144. You shake your head sometimes and wonder why people can't do the right thing. (They say) it costs too much and it's not worth their while. Cost shouldn't be a factor. What's a dollar going to do if people are dead. ...

The main benefit of responsible environmental behavior is claimed to result in lower potential economic liability. Costs of inadequate environmental behavior can include sanctions on the firm for violations of laws or regulations with the EPA in the USA collecting over $135 million in fines in 1992 alone (Bureau of National Affairs, 1993). As well, legal liability, property damage and property loss, negative community reaction to proposed plant sites or expansions, lost executive time managing environmental issues, lost employee confidence, and even personal employee liability are further costs of poor environmental performance (Greeno 1994; Kolluru 1994). Environmental clean-up costs are about $500 million annually in the USA, and increasing (Wade, 1992). Economic benefits of environmental compliance or proposed modifications are rarely mentioned, but improving environmental performance is viewed by several firms as a defensive stance that avoids these fines or other economic costs.

> C - 129. If you think back to the issue of 'fugitive' emissions, and we spend preventive type dollars in doing surveys and let's say it costs us $50,000.00 a year. That's quite a bit of money. If have one week where we have to shut down to fix that leak, it could cost us a million dollars. Is the $50,000 an acceptable cost?

Because of liability concerns, many respondents from several firms express the opinion that it is wise to err on the side of caution, and this leads to greater concern with SB. This also leads to increased pressure on other firms (particularly supplier firms) for improved quality and safer processes. Some behavior is undertaken because insurance cost is 'astronomical', and because the firm is self-insured they are unwilling to assume as much environmental liability risk.

> D - 75. Well, maybe (you could find insurance) if you shopped around. But the cost would be astronomical because the potential liabilities are astronomical. A leaking tank contaminating a water supply... the clean up cost on that alone could reach millions and millions of dollars. Then all the civil litigation that would go on for years. ... So the real leaders in companies saw this developing years ago and said: "I don't want to be in that position with my company. Let's do things now before we get there."

As well, firm respondents expect that environmental requirements will continue to escalate, and so some behaviors are more economical now than in the future.

> E- 36. We just recently closed several manufacturing plants because they were old and provided a lot of liability and we're going to go ahead and take the hit to clean those up today with today's standards versus keeping that plant open another ten years and trying to clean it up with standards that are going to be enforced in ten years.

Lessened personal liability is also claimed. Personal liability, when mentioned, looms large in management consciousness.

> E - 8. You know, when you have executive Board members of Fortune companies going to jail because they have not taken a position on the environment and knew it. Bata has to be a classic. If you knew about some of these things that were being manufactured and didn't change a thing about it, you're criminally liable, and that's a strong statement.

This data confirms employee awareness that new environmental requirements include increased civil and criminal liability for both individual and companies found negligent or non-compliant, and this encourages SB. Dechant and Altman (1994) claim this change in regulation requires greater environmental awareness from all levels of management, and this data concludes that greater awareness is present from operators as well as from management levels. All firms except firm F accept that current behavior can become a future liability.

All firms claim that environmental behavior becomes more expensive the longer it is left undone.

> A - 90. Certainly. But in my estimation, which is why we decided to be proactive, the longer you wait the more costly it's going to become. And yes, we have to be driven by that part of the jigsaw puzzle. ... It's a living thing.

Early compliance and pre-regulation compliance with regulation or procedure is seen as prudent management by some firms. This data shows that management does recognize some normative guidelines in their role of satisfying a wider range of stakeholders than just stockholders, even through the term stakeholder may not be used. Stakeholder issues are sometimes social issues as well, and environmental concerns fit this category. Some claim that the firms should do everything in their power to enhance and safeguard the environment, and one firm believes that the firms should have an open chequebook regarding the environment. An acknowledgment that good environmental behavior has broader benefits than only economic receives only modest support.

> C - 80. I would say that with health, safety, and environment, it's an open book (the company cheque book). Safety wise, I've seen some examples. If something is unsafe, something is done about it. No questions asked, regardless of the amount of money. It makes you feel a lot better about what you're doing.

Firms undertake environmental behavior while searching for an economic payback. Environmental behavior is often expressed as a secondary benefit, as little more than an incidental to economic profit.

> A - 7. We have a couple of ideas at the present moment, to recover two products that presently we either burn or destroy catalytically. And uh it'll all cost, one of them will be a couple of million, and the other one about six million dollars. I think we'll get the money for that. OK? I think we can build a very reasonable case for spending that money. If we can get this to fruition, and I think we can, it will do two things. OK. A, it will bring product to the market which hopefully will improve our bottom line and our cost of producing that particular material, but it will also environmentally be an improvement for the site.

In this instance the same respondent expresses the environmental benefit as an argument that carried weight when the economic argument was not strong.

> A - 8. So I hear the economics, but I also think there is a different attitude in terms of economic spending. We just spent six million dollars again in recovering a material from a by-product, but the plant is up and running, but one of the key things was, in the justification for that expenditure, was not only that we could utilize the product within the family in N. America, but also it took about fifteen thousand tons of chemical out of the material we're putting down our deep well. And that was important, that was stressed quite clearly, that this would be removing fifteen thousand tons of a product that we were punching down as a soluble product down the deep well. And it was important. That

> helped that project because the economics for that project weren't that wonderful, OK in terms of return on capital and payback. But it was a step in the right direction in terms of improving our environmental performance.

Pollution prevention is often suggested as a win for both the environment and the corporation. Respondents believe the prevention of pollution offers the best environmental solution, and (unlike pollution control or treatment or disposal) has a positive long-term economic benefit to the firm. Most firms mention pollution prevention, but aside from firm B (closed loop-water system) were having difficulties in achieving major process change because of short-term cost issues.

The firms also search for a competitive advantage. Sometimes good environmental behavior sets a standard that competitors are then forced to achieve. The other benefit of market driven strategy is that competitive advantage can be found by ecologically differentiating a firms products from its competitors.

> B - 170. The other thing is it's good business sense if you can set the standard, first of all, if you believe that doing things well is going to pay dividends in the long run and you can set a standard that your competitors have to come up to, then that helps too.

Certain behaviors have proven themselves as cost savers over time, and incidentally improves the company's image with others and with government.

> B - 295. Firm B believes that being very good environmentally speaking would certainly improve our competitive edge in the long term. And firm B was the first chemical company which used an incinerator to burn waste 75 years ago, and therefore when the first EPA inventory comes about, in terms of who has the least waste stored ... firm B has the least waste stored because we had burned it all, or we burn the majority of it, and will until the rule changes. If the rule changes and it's who produced the most, firm B would be way on top.

All firms believe themselves to be in continuous improvement mode, and in continuous improvement competition with their competitors, so having a higher rate of improvement is also seen as necessary to even maintain present competitive position.

> C - 29. If you're staying flat, you're guaranteed your competitor is getting better. It's all focused on relative competitive position. To stay ahead, your rate of improvement has to be higher than the rate of improvement of your competitors, because they're getting better too. So, it's not a matter of a decision to get better ... So, that can really only say positive things for the future.

> D - 71. That's really what we have to do as an industry, as a country, is to make sure that the reactions that we take are to scientific fact and make sure there is a right proportion, otherwise we're going to be left competitively behind as a

country. We can't make it. Other countries will jump in and make it with much more environmental impact than we will.

The unfairness of slack environmental regulation in other nations was mentioned by several firms, and the cost of environmental regulation in North America is seen as a competitive disadvantage.

> D - 72. No, it's North American (environmental regulations), and to a certain extent it's European, but, I don't think it will ever become Asian... There's that huge country over there (China) and that huge potential workforce could make lots of products for real cheap ... They will just pollute the world as we in North America force businesses to become unviable.

Awareness of low foreign environmental standards pushes the search for more efficient behavior. In the SB storyline, good environmental behavior is believed to lead directly to economic profit. Most firms believe that a positive correlation exists between good economic performance and good environmental behavior.

> B - 212. It appears that certainly, in my time at firm B, it pays dividends. I'll give you an example. Our compensation premiums with the Worker's Compensation Board are at a 40% discount. If we were at the 40% surcharge, which would be very easy for us to do by being not a lot worse than where we're at, it would cost us two million dollars per year. That's direct. Cost. But there's many other costs associated with that.

> D - 60. There's probably some economic payback (to going beyond regulation), but not a return. It's not all lost. The more stringent your guidelines or procedures, the better your operation will be. It's not all lost. You get some side benefits from it.

Stockholders are also believed to recognize good behavior as a positive factor when making investment decisions, and this encourages SB behavior.

> A - 124. Now what is happening is that people are saying not only do you have your financial but you have your environmental record. What are your liabilities? There is almost an environmental balance sheet and a financial one. The way people look at the financial one is, how does the environmental balance impact that? What is the long term liability?

Good environmental behavior has other non-economic benefits as well, although these benefits range from staving off corporate disaster to only a vague assumption of benefit.

> C - 13. It's bad business to be bad to the environment. You look at Bhophal and what that did to Union Carbide.

C - 37. I would say there's no direct economic benefit but there's lots of benefit.

The firms conclude that good environmental behavior is demanded by society, fairly or not, and that to ignore this demand only invites economic ruin.

This data suggests that ecological or environmental awareness in a philosophical sense is not needed for a firm to be considered pro-active or "green" regarding the environment. As an example, pollution elimination at source not only reduces waste, which is the environmental benefit, but also saves on material usage and so reduces cost, the financial benefit. Traditional cost / benefit analysis is almost always done by the firm, even though pollution reduction or elimination will likely be "sold" as an environmental decision. Side benefits of pollution elimination include lesser cost for pollution control equipment and personnel, and possible escape from government regulation, inspection, or interference with firm management. A conviction that massive change resulting in sustainability is necessary by either industry or society to safeguard the global or local ecology was not suggested by any of the firms. A long-term environmental stance is hindered by the uncertainty caused by rapidly changing technology, and so being pro-active environmentally can be viewed as risky as well as expensive.

The BAU story-line is strong: money is the only motivator; environmental behavior is mostly just cost; efficiency is needed in all operations including environmental practices; do only what you have to; corporations need profit regardless of any other behaviors; and, society supports economics values over environmental values. Most of these supporting factors can be considered 'hard', in that a cost for certain behavior is real and can be counted.

At the same time, the SB story-line also receives economically based support: environmental behavior is not all that expensive; good behavior becomes more expensive the longer it is left; good behavior results in lower corporate and personal liability; an open chequebook is needed for the environment; good behavior and efficiency is the same thing; good behavior leads to competitive advantage and higher profits; and, good environmental behavior has benefits beyond just economic. Most of these SB supports can be considered soft, and more normatively driven.

4.2.2 Government and Regulatory Pressures

The BAU story-line is dominant regarding government and regulation. The government is seen as indirectly driving all environmental behaviors.

> B - 141. We, I would think, often do things because we don't want to drive the government to come in with even more restrictive regulations

> D - 20. Essentially the only driving force in the end would be government.

Similarly, regulation is claimed as the main driver of most environmental behavior. Four firms express medium or high conviction that government regulation is the main driver for corporate environmental action in the short-term and three of these four firms believe that government controls the timing of regulated change. The extreme consequence of non-compliance is closure.

> A - 64. It enables your plant to keep operating, because if you don't meet the environmental standards you are closed down, right? ... So you have to be concerned about environmental regulations.

Compliance with regulation and reporting properly to document compliance simply must be done, and problems with achieving compliance are reported to the Board of the corporation.

> A - 36. Well, ... you've got to be in compliance with the regulations. Number one, that's a given. If you're not there you're in trouble. So in the short term the regulators have got to be number one. The first question is "Are you in compliance, are your compliance reports in?" So, that's how seriously it's taken. Environmental matters are reported directly up to the Board. They (the Board) know exactly everything that I've reported to the government.

Although all firms claim that regulations force behavior, all firms still claim that they undertake environmental action voluntarily to some extent.

> B - 31. There's always new regulations coming out. It seems like everything's tightening up, but that's more from the government forcing the companies to do it as opposed to the companies changing something.

> F - 1. I think most of it has to do with regulation. Like if you were driving down the street and they didn't enforce the seatbelt law, you wouldn't put it on. If there was no one breathing down these guys necks, they probably wouldn't spend a dime. So, I would say about 80% is because of regulation and 20% is because they live in the community. Why should we put in a $500,000.00 containing pond if we can dump it into the river and pocket that money.

Government regulation is generally seen as harsh and unfair. Regulation is seen by all as too expensive for both the government and the firm.

> B - 186. It would be nice if the government would just leave you alone. The only way that's going to happen is if you can prove you're responsible without them. It's cheaper for the government not to have to do it and it's cheapest for you. You do this thing to show that's the direction you're heading, so they're happy and they stay out of it.

The firms complain, on the one hand, about how rigorous and expensive the regulations are, yet on the other hand express no great concern about their ability to meet these standards. Further, four of the six firms adhere to CCPA Responsible Care standards which are considered by all firms and the government to be more stringent than government regulations. The two remaining firms claim near CCPA standards even though they are not members. Some firms have withdrawn from the CMA (the US equivalent to the CCPA) because of the cost in achieving Responsible Care guidelines (Buzzelli 1994). Compared to other industries and other members of the community, chemical firms feel singled out by unfair expectation and regulation.

> D - 25. It's the deep pocket thing. Oh yeah. They must have lots of money. They can afford to make the change. So, we'll make them make the change and hope they'll make the world better by this much. So, that definitely happens. I know the farming industry (basically is regulation free) and the other one in Alberta that hasn't had as big an impact as of yet is the oil industry.

Mixed in with this view of regulation and government is another consensus which sees the government as incompetent and ignorant and in need of being lead. Much regulation is seen as being driven by politics and not by science or 'reality', and that this government demand ignores the cost or impact on industry.

> A - 183. The legislatures are trying to respond to emotional (public perception) things. They're under pressure and they don't have the ability to do it all. They have to push it on to industry to do that stuff. It would have to be something really emotional because the politicians would respond to that.

> C - 149. Sure we are (getting more and more regulation) and it's dangerous because a lot of the regulation is being driven by emotion and not by practical reality.

> D - 84. What they've done (the regulators) in some areas is they've set up that in 1990 your emissions were this and you've got to reduce them by so much by 1996, with no real thought on what's the cost or what's the impact. What's the balance? Will it shut the industry down? The Chinese will take it over and they will put stuff out regardless of the pollution and ten times the worker exposure.

> F - 8. The standards keep ratcheting up and you assume that's based on science. In some cases yes, in some cases no. You can't argue that a pound of something in the environment is bad. The question is: How bad?

The subjectiveness of political action is seen by some as a potential benefit if conservative political trends pull-back on regulation (Dowd, 1994; Thompson, 1995). Most firms believe the industry could be self-regulating. Most firms also believe that they lead the government in terms of standards, and that regulation is largely irrelevant as most firms regulate themselves at standards higher than government standards. Industry respondents claim that industry has higher quality and better trained employees than the government, partly because of wage standards. Respondents believe the firms should be left alone because this employee quality enables them to have better solutions and answers to environmental problems. A few respondents had an aversion to government employees telling what they had to do.

> E - 108. I think the other view that I have is that I wish sometimes that the government people were some of the better ones in the industry and they tend not to be. ... I struggle with that myself. How do you make the informed government guys affordable. You struggle with that.

All firms believe that regulation will get tougher and broader to cover more aspects of emission and other standards. Regulation is seen as the outcome of public policy debate, and designed to address specific problems that reflect the interests of society, or perhaps only segments of society (Buchholz, 1993). In this sense, the corporations have no difficulty in identifying themselves as part of a broader society. Although government is blamed for unfair and expensive regulation, government is also seen as sharing basic economic values with the firm and so is relatively hands-off regarding the environment, partly because regulation is expensive for government as well.

> D - 90. Well, I think they're (the government exploring deregulation) exploring it because regulation costs money for crying out loud, be it for us or for the government. You pass a law, you pass a regulation, you have to monitor it, you have to prosecute. ... You have to hang a few people to prove that you are serious about that regulation. I think deregulation, if approached wisely and carefully, could be good.

Most firm executives and employees believe that economic concerns are more important to the government than ecological concerns, and more significantly that environmental concerns will be sacrificed for economic benefit. Government is seen as actively fighting against environmental concerns on several fronts.

> F - 60. But have they (the government) ever been successfully challenged? For example the Paddle River Dam or the pulp mill in Grand Prairie or whatever it is. It's all complained about (by the public), but nothing ultimately ever happens. They (the government) just spend a few million dollars in court (and then do what they want).

All firms believe that government regulatory watchdogs together with firm employees interpret the regulations, and that this takes place on a firm by firm basis. This negotiation is largely founded on firm reputation and history of compliance, and the degree of trust the government has in the firm. Negotiation with government is common practice by all firms. Firm A discussed the degree of reasonableness afforded by different levels of government, with the enforcers of regulation being much more concerned with the "letter" of the law instead of the "intent", while legislators were much more 'flexible'. Negotiation allows flexibility in firm behavior, and often translates into extended time frames for compliance. The firms see this flexibility on the part of government as reasonable and owed to them because of their responsible corporate practice. The power during these 'negotiations' is clearly held by the government.

> A - 75. It's done on track record, there is no question of that in my mind. Basically the regulations are written, and if they want to screw you they can screw you. There's nothing you can do about it. Heh heh. My job at the end of the day is to give them no reason to screw us.

Two firms are firmly convinced that interpretation of the regulations was as important to firm behavior as the regulation itself, suggesting that government regulation is viewed only as a guideline for recommended practice, and not a standard to be met without exception.

> A - 70. What we try to do is not say "No no no", but "Let's look at the situation. What makes sense?" What do we think we can accomplish? What would lend clarity to what you're doing. We tend to worry more about the interpretation of how things are written, lets add clarity to what this really means.

> F- 50. Everything is subject to interpretation, and yeah I can buy that. This is the twist we can put on that, nothing is black and white. And especially in terms of environmental things I can see that things are not black and white.

The firms believe that continuous improvement is more important than any absolute degree of achievement on the part of the firm. This improvement is always measured against previous behavior and standards, and is never discussed in terms of some philosophical ideal..

> D - 24. The regulations for the most part in Alberta are fair. They are very strict. You cross the line certainly enough times and they have the power within the Act and regulations that they can do all sorts of things, but that's where the fairness comes in. You don't necessarily get hammered for the first incident. It depends on the incident. And that's really what it needs to be. If there's something that could truly be considered an Act of God, that would be handled differently than gross negligence.

Having the reputation of being pro-active about environmental behavior is considered by some firms to be more important than any specific behavior they might undertake. All firms acknowledge that government sets the pace for environmental behavioral change.

> A - 190. We should know how to run our own business and do it well. That's what we're in business for. We've certainly always tried to be proactive and keep ahead of legislation and I think that's a proper stance. I think that if you just sit there and wait for the legislature to tell you what to do, you're going to be in trouble. But certainly, legislation has an effect on the pace. That things get done. I think that's where legislation helps both industry and the general public because then it sets some targets and goals and says to Industry: "Well, you can't wait forever. Let's get this done by such and such a date. Let's set some limits."

The government is seen as both friend and foe, and even though regulation is usually seen as expensive and too harsh, it is believed to be negotiable and not as harsh or expensive as it could be. Government makes efforts to consult with industry about some regulatory change. Several firms believe they lead the government both in knowledge and ability, and so deserve a large influence in determining standards for the region. The firms believe that they should be allowed to influence the legislative and regulatory process with regard to specific laws and regulation that affects them directly.

> B - 149. They've done an exceptionally good job of going out with the Round Tables. A consultative and participative approach. Now that's not to say that when you tell the government what you think ought to be done that they are going to adopt it 100%, far from it. But they do genuinely go out and look for and solicit input for policy and regulation before they make the regulation.

> B - 180. If there is a regulation coming, a lot of the big companies will lobby or will sit on those boards that will decide what the regulation will be. They're going to try and push the regulation the way they want it.

> F - 54. Yeah, we've had input into it. Yeah, we know what's coming. We just had a meeting with the government, they're going to introduce fees into the approval process. They told us they are going to do this, and we told them what we thought of it. We don't think it's a great idea.

Costs to the firms of non-compliance can be broader than only financial. This is particularly true if interpreted by government personnel as proof that the corporation is indifferent to perceived environmental or social benefits. Full cooperation from industry is expected. Most environmental regulation is seen as complex with resultant high cost not only because of time and money needed to achieve compliance but also because the regulation restricts the firms from taking more effective process change to improve their environmental performance.

> C - 30. I think what Alberta Environment is trying to do is trying to develop this cooperative environment. ... And (they) put a lot of faith in the industry to be open and honest so that there is not as many people coming around asking if you're open and honest, but if they do find someone who is not open and honest they will really come down hard. As I said, even though there are people to

> regulate it, they are counting on industry to regulate themselves based on the standards. Self-regulating.

The government's negotiable stance regarding environmental regulations results in some firms being skeptical about the sincerity of the government regarding environmental programs. Only one firm expresses the opinion that regulation creates a level playing field in terms of equivalent expected behavior for all firms.

> A - 184. And what they try to do is ensure that government regulation is tailored so that the Industry can do as much as they can. ... Clearly this is not always possible, but they do try to get a true vision as to what is actually happening out there and what Industry can do, and try to moderate, let us say, what regulation asks. In an attempt to insure that it can be done on a voluntary basis, and that it will be successful. I mean, there is no point in trying to climb Mount Everest without having the right stuff.

As with the economic pressures, the storyline regarding government and regulation support for SB behavior is weaker than the BAU storyline. In this story, the government is seen as essentially irrelevant in determining the firm's environmental behavior, as the firms would undertake these behavior anyway.

> E - 110. (Why go beyond regulation?) I would say because we thought that there was a need. That we should be monitoring our own activities. That the government shouldn't have to tell us that, you know, here are the rules and regulations of a certain province, and they may be very specific at times, and they may be very broad, but we should be doing that ourselves. We shouldn't have to be told by government regulators what to do. We should be able to know what we should do, this is what we feel we need to do.

Although most firms at least mention the ultimate threat of being closed by government, not one respondent seems to be afraid of that 'threat' actually being carried out. Firms however have shut themselves down for poor performance.

> D - 141. That's the extreme. Fear of somebody else shutting us down isn't so much the problem. It's shutting down that's the problem. We don't want to be down, that's lost revenue, but we've done it to ourselves. We don't want to shut down, so we're trying to solve our problems before they become a shut down problem.

Firms admit that government attention was the spur that got them interested and started on the path of environmental concern, but some now claim that industry is self-controlled and proactive. The incentive is clearly there for the firms to demonstrate their concern voluntarily, and the government can then make the assumption that firms are being responsible, and not regulate them.

> E - 112. I would say it's driven by the industry. As I said earlier, the events to get the industry to say, hey, we have to implement something was the first step, but now I would say it's driven by the industry. Probably took some events and some things to get it started, but now the industry has taken a hold of it, and championed it, and they will continue to go with it.

Industry instead of government leading environmental improvement is claimed as proven because most firms are past the minimum standards established by government. Low concern is expressed about achieving compliance by most firms and most believe themselves to be ahead of government regulation and expectation. Minimal compliance is claimed to not be the firm's objective.

> A - 203. I don't think we have fear of regulation because we're normally ahead of it anyway.

> E - 31. I wouldn't say (regulation is getting) easier. ... I mean, that isn't what we're working towards, to make things easier.

Regulation is seen as easily satisfied by some respondents, and in any case regulation is claimed as a benefit to the community and society and so is a good thing that the firm should support. The firm's practice is expected to safeguard the public. Strict environmental regulation is seen as a very effective tool for assuring improvements in the environmental performance of business organizations.

> A - 194. I would say, overall, government doesn't do that bad a job on the environment and health and safety legislation. Most of it is sort of driven to protect you and I anyway.

> E - 131. But they (the regulations) are there to protect the environment and to protect the people. The behavior of the firm is there to protect the environment and the people.

Self-imposed standards are believed to be one way to improve industry reputation with the government and the public. The conclusion by some firm executives is that government is following industry standards, because as industry raises its own standards, government follows with confirming regulation.

Regulation can be viewed as a promoter of SB in that irresponsible behavior is not allowed. Compliance with industry regulatory standards reduces competitive fear between the firms as all firms go through the same changes more or less at the same time, within provincial or national boundaries. Most firms have expectations as to what new regulation they expect in the near and middle term, and some firms (firms B and E particularly) move to introduce environmental improvements ahead of the other firms. There is some cost benefit seen in terms of less compulsion to meet externally imposed deadlines, and also the belief that setting benchmarks on the firm's terms that the competition has to meet on the government's terms results in cost benefits.

> B - 181. So, something like the CCPA is to our advantage because it causes our competition to be operating at a similar standard to us. The other thing too, is that most of the Canadian Industry, I think that we all agree that if we can band together and form our own kinds of rules and regulations and monitor each other, because there are bad actors within the chemical industry, so in the general group it keeps the bad actors up (to standard) and the regulators out.

Most respondents take a cynical view of the government, and believe that the motivation for government action is simply government concern with looking good to the public.

> A - 191. Government wants to pass laws because they want to show, hey, we're very much concerned and we're doing everything in our power because of the public perception type of thing.

Government work is also seen as difficult, trying to balance the demands from the public for both environmental safeguards and growth and development at the same time, and concerns from industry about having a healthy economic climate in which to do their work.

> B - 155. They are not going to get elected on a sustainable development platform. They wouldn't be (a) able to articulate what it really means and (b) if they could it would lead to decisions that would be unpopular in the short term

> F - 64. ... this is when government is juggling jobs versus the environment. ... The government sometimes gets caught in the middle negotiating with the public especially now because we have a very public process for license renewal, for example. So, here they're caught in the middle. Here's the public and here's industry saying "well I can't quite do that because of these reasons". Those guys are perhaps saying "I don't care".

The firms generally believe that the government is not sincerely concerned about the environment. The government is believed to be driven by fear of the public. Most firms express the opinion that the government wants to look good to the public, yet real environmental concern is of lesser interest to the government than the visible appearance of concern. All respondents believe it is easier for government to regulate industry than it is for government to change the behavior of individual citizens or force change on the municipalities.

> A - 192. Well the thing of it is that you're looking at how government is going to be after industry for a long time because it's a way of showing their concern without costing any government money, and at this stage there is very

> little more to be gained by bashing industry. At least not in the Edmonton area. But government will continue to do it for the simple reason that they want to be shown as proactive. Yet they don't want to be spending the money themselves for some of the municipalities, and they also don't want to affect the average Joe's lifestyle.
>
> D - 101. This gets back to the government issue because it's fairly easy to pick on an industry because you get a hundred people yelling at you. But you put out regulation that you've got to get your car tested once a year and if it doesn't meet it, it's off the road, you're going to have a whole bunch of people yelling at you. ... It's these people that will jump, yell, and scream. The politicians got to get himself re-elected. The curse of our society is being a democratic society.

Several respondents believe that government would prefer to have a hands-off approach to environmental regulation. If industry can keep the public happy then the government is prepared to leave industry alone.

> A - 214. I think they do a pretty good job in Alberta actually, and basically what they are doing now is having a hands-off approach to environmental regulation. What they are saying is: "Industry you go out and satisfy the public's demands and we'll be happy".

A major belief and concern of all firms is that regulation is constantly changing. The firms have a fear motive for staying ahead of these changing regulations. Firms regulate themselves hoping that government will not feel the need to command and control. Because regulations are constantly increasing, the wise manager stays ahead of current regulation, partly as preparation for the next level of regulation. Management recognizes that environmental regulation is everywhere that business is done, at the provincial level, national level, at a trade alliance level, and even at a global level.

> A - 66. Legislation has tightened and there's been more of it than there was back in the 50's and 60's and that's probably forced some things to happen. But, I think what most companies have recognized back in the 80's is that they didn't particularly like the idea of government telling them what to do or interfering in their business, so most of them decided: "Hey, we'd better keep ahead of legislation and be proactive in this area because if we don't they are going to come in and legislate."
>
> D - 91. I think that some of it boils down to is to spend the money now and be prepared for what's coming so that we're sailing when it does come instead of hitting the wall when it finally does show up.
>
> F - 9. I think external to that, is the push from the regulators, and the companies wanting to maintain a bit of a buffer between their performance today and the regulations either today or tomorrow. You don't want to be that

> close to the line. Because when you have a big "oops" the consequences could be much more severe than they were a few years back.

One respondent likened the firm to a duck all placid on the surface of the pond, but 'paddling-like-hell' under the surface. The firm is 'voluntarily' keeping ahead of regulation.

> F - 48. There have been some pushes and prods from the government. It doesn't take that much. Industry has been thinking about it all along anyway, and has been moving in that direction. Like we're sort of like a duck you know. All calm on the surface but underneath you're paddling like hell, it doesn't look like much is going on but there is lots going on under the surface. So, the government comes along with a new regulation or an act or something like that, it may seem like this is something entirely different and new but we've been prepared for it

Flexibility is seen as the benefit of voluntary change. As noted elsewhere, 'better" regulation would focus on outcomes rather than on command and control, would allow phase-in periods, and would use market incentives rather than penalties (Porter & van der Linde, 1995). The individual needs and abilities of each firm can be self-evaluated, and appropriate and cost-efficient choice of methods to achieve firm goals can be chosen by each individual firm depending on their own constraints, capabilities, and interests. These comments about the irrelevance of government contradict earlier statements that the government is the number one driver in the short-term, and controls the timing and rate of changing corporate environmental behavior. This contradiction is a good example of a sub-theme running through much of the data, with the espoused stance of pro-active and enlightened environmental management being off-set by angry and reluctant compliance with regulated behavior that would not likely be undertaken without the external government pressure.

The two story-lines are strongly contradictory. The BAU story-line suggests that government and regulation drives all environmental behavior, and that regulation is harsh, unfair, and expensive. At the same time, the forces encouraging SB suggest that government is basically irrelevant and unnecessary, that regulation is easily met and satisfied, and even that responsible firms want to do more than necessary simply from a sense of social responsibility.

The BAU forces suggest that government is not only inept, but prefers to be hands-off regarding the environment, and negotiates regulatory standards on a firm by firm basis. Under the BAU story-line, firms can negotiate their way out of difficult environmental rules by dealing with a government very sympathetic to economic pressures. The SB pressures may be similar to the BAU pressures, but the difference is in the interpretation. The government is believed to be mostly concerned about their image and not really concerned about the environment, therefore will push for environmental improvements from the firms even if these demands are unreasonable, or even viewed as ignorant or emotional by the firms.

The SB story-line also mentions regulation as a 'good thing' that creates a level competitive playing field for all the firms. A major SB pressure is the awareness by all firms that regulation does change and almost without exception becomes more stringent. The wise corporation achieves superior performance to create a buffer between present regulation and performance, and creates a head-start toward achieving compliance with the next higher level of regulation.

4.2.3 Customer concerns

The BAU and the SB storylines were both evident in respondent views about customers. In the BAU model, the customer was seen as unconcerned about environmental behavior, except in terms of how the chemical product might affect their own environmental and pollution performance.

> C - 137. I don't think our customers are all that concerned about our environmental performance ... I think they are more concerned with how we're impacting their business. We're very active in their businesses.

Customers are believed to be only concerned about reasonable quality at an inexpensive price, and this is seen as even being the basis of the Western economy.

> C - 141. I think, these days, what's bought is whatever is cheapest.

> E - 1. It's a dog eat dog world. Everybodys looking for a better price. You're always looking for a way to give the customer a cheaper product, but just as good, it not better. That's what drives the economy.

The public will search out this cost benefit. This belief about customer desire supports the BAU model. Spending money on environmental behavior, and therefore likely raising prices to cover this cost, is discouraged.

In contrast, the SB model was also supported by other perceptions of customer demand. Respondents echo the claim from others that 'green' consumerism is a growing trend (Coddington 1993; Ottman 1992). In support of the SB model the customer is seen to expect good environmental behavior from the firm. This customer desire for 'good' behavior is tempered with a belief that this desire is self-serving. Customers are believed to want long-term relationships with their suppliers, and so feel that environmental problems could lead to supplier problems that could affect their own operation.

> C - 131. A lot of people put their money into things that their conscience can live with. Customers wish to deal with businesses that do not have a bad reputation. If we were to continuously have Alberta Environment coming here

and putting our license to operate on probation, our customers would not be pleased. They have other options.

C - 22. So, you know, what does the customer want? He wants good value. He wants service. But some customers, and again I say some, want a reputable consciousness. ... They don't want to be dealing, for any number of reasons, with companies that don't have good reputations. One (reason) maybe, in today's environment, when you are trying to form partnerships, and it's hard to have a long term relationship with some guy who might be out of business next week...

The customer does recognize what constitutes good environmental values from the firm, and some choose responsible behavior over superior price. Some respondents claim the majority of consumers are concerned about the impact that products have on the environment, are more likely to buy environmentally friendly products, and are prepared to pay a higher price for these products. This may only be popular fiction. Research is inconclusive on this point, although Ottman (1992) claims that 25% of consumers are active green consumers, 31% swing between green and non-green behavior, and 44% are either not concerned or hostile to environmental concerns.

D - 77. We can be (at a disadvantage compared to third world production facilities), but I think in some ways it balances out in the wash. Our firm is a very strong company. We have an advantage in that we have a very educated market, like people are very educated environmentally and they respect that (our good behavior) ... A lot of people more and more are buying a product not solely based on cost, but on a lot of other things. That's my opinion, really.

Bad environmental behavior is believed to translate into lost sales, and ultimately to firm failure.

A - 61. Sure. You won't survive (without good environmental practice). I think a lot of companies that didn't do it went down. There were a lot of companies that went under in the 80's.

Customer education as a firm responsibility is only promoted by firm E, where stockholder equity is sacrificed to benefit customer education, at least in the short-term. The customer is believed to be confused by firm E respondents, and does not trust the organization's claims about the environmental benefits of their products and services. These claims are seen by customers as being marketing gimmicks.

E - 14. What you have to balance is sometimes the customers don't know what's best for them. My customers in the oil industry right now don't think drum disposal is important. They still want to buy drums and they won't pay a penny more than they have to. So we have to weigh getting my customer out of drums versus what he's willing to pay for that and how much of my stockholders equity I'm willing to give up to absorb some of that cost until my customers are willing

> to pay for it. ... So sometimes you have to kind of force the customer to look at that vision and say: "How much did that liability cost you?"

In this instance, the firm's environmental position is identified as the cornerstone of corporate practice and won't be sacrificed or compromised.

> E - 81. ... And we've committed our customers to it. Most of our customers are doing business with us because of the position we've taken on it (the environment). We won't breach that ... and it costs us a lot of money to do that.

The contradiction between the two story-lines is obvious. On one hand the customer is seen as only concerned about price and is totally unconcerned about the environment and vendor environmental practice, both factors obviously pushing the firm toward BAU. On the other hand, the customer is seen as expecting good behavior, able to identify good or bad behavior and reputation, and makes purchasing decisions based on that judgment, certainly all incentives for SB. The realization that sustainability goes beyond simply making or purchasing more Earth friendly products, and involves a willingness to produce or consume less, was mentioned by no-one.

4.2.4 Community pressures

Community pressures are interpreted by firm respondents to support both the BAU and the SB storylines. These storylines are parallel and strong, and very distinct in discussions about community pressures.

The BAU story-line sees the community as passive and not concerned about the presence of chemical firms. Industry is seen as real and present by a few community members who perhaps feel that nothing can be done about the chemical presence in any case.

> A - 152. Well, there are some that care. Basically, I think that because of the oil and gas and the economy that we've got here, that if you don't noise them out, and stink them out, and evacuate them out, people will let you live. Basically. Yeah, I mean they're realistic. They're used to industry around here.

> F - 28. There's an element of the public that's concerned. There're people out there that are very concerned about the chemical industry and these plants, be it the environment or safety or whatever. The public at large is sort of passive and might be interested, but not interested enough to take the time to do anything.

Unconcern about industry is identified by some respondents as an extension of general disassociation from larger economic or political issues in society generally, although an incident at a chemical facility would bring back attention with a vengeance.

D - 182. Either people have lost interest or are too busy to stop and think about that anymore. If you get the majority of people having no time, and then you lose touch very quickly. You lose touch and then you lose interest, until something major happens. I don't know why it's gone like that but certainly a big part of it is just the way people live now.

The firms believe they have greater time, resources, and concern about the environment than does the community, and this lack of interest by the community is seen as an important and central issue working for the benefit of the firms.

E - 98. If there are no incidents there is no concern. Yeah, yet the firms are concerned anyway, which is probably a better way to have it. If we're in control of what we're doing then there is less possibility of incidents happening which means there is less concern for the public.

Corporate respondents believe that the connection between personal practice and pollution is not made by most community members, and so most pollution is unfairly blamed on industry. This assumption is seen as unjust, yet the firms do not want to point fingers at municipalities or the public, fearing backlash. Several respondents claim that the public needs to be educated.

A - 147. I don't think that the public knows what they're talking about most of the time, heh heh, they just want cleanliness in general. That doesn't mean to say that they don't want to run two cars per family, and certainly would object to the old clunker having emissions testing, and what do you mean you want me to use a different gasoline that may cost two cents a liter more than the ordinary premium. That's different. Well you and I know both know that that's not the case. And if you look at emissions in a very broad general sense I think Industry in Canada is responsible for, I think that last number I saw was, sixteen percent of nox and vox, and then transportation is responsible for 49% of nox and vox, but this impinges on a different area. Heh heh heh, this is different. I mean, (the public says) go after these big guys, they're polluting everything in sight. That's not correct but the public is not aware of that.

D - 192. And I guess that's discouraging to some people (extra taxes etc. for societal environmental cleanup), but I think it's probably lack of credible education. If they really understood what industry puts into the air compared to what the general population does, there might be some more understanding.

The claim of community ignorance and passivity is made by all firms in this sample. The community is also seen as afraid and emotional regarding their safety. Respondents state this with varying levels of concern, as community is believed to directly influence government and regulatory standards. This is believed to be a trap of perception over 'reality' for the firms.

> D - 43. It's an emotional response. Some of the government people, I think, recognize this, but they're caught. The press will certainly listen to Greenpeace with their emotional appeal more than to a scientist working in a factory. They can work it better in the paper and they can understand it easier than they can a scientist with a whole bunch of facts. And readers don't want to read that. So, they get that and that pressure becomes, on government, to do something whether it's the correct thing or not.

All firms believe the public is ignorant of what chemical firms do, and this same public is believed to be afraid and emotional regarding chemical firm behavior. Paradoxically, the public is seen as afraid yet unconcerned at the same time. Although the public is seen as passive, firms A, B, and C believe public concern is increasing, suggesting that the community has power even though not exercising this power, and so firm behavior is partly focused on maintaining a quiet community. Most firms express the opinion that greater community knowledge about the firm's operation and technological ability will lead to greater community confidence about the firm's operation. In the BAU storyline, greater community awareness of 'the facts' would enable the firm to take better care of both the business and the community.

> D - 205. Again, it's fighting emotionalism and not fighting fact. If you spent all that energy collecting the facts and then analyzing them and then dealing with real situations, you'd be a lot further ahead.

Community reaction to the firm however must be dealt with, even if this perception is unfair or incorrect.

> B - 125. That's right. You can't win with that (old style of 'Trust Us' management) posture, and that is what I was trying to tell people. That perception really is reality. People's perceptions may be unjust, but you still have to deal with that.

Risk from the chemical plants is seen as unacceptable risk by the community, even though 'normal' risk, from automobile accidents for example, is accepted.

> D - 204. The risk from the chemical industry is a risk that people have to bear that's our of their control. ... And that's the one that people have the most difficult time accepting. 30,000 were killed in the US last year in automobile accidents, yet that's an acceptable risk. People live with that. They don't mind. ... I don't know what the number of people that there are that died from cigarette smoke, but it's probably three times that, But that's also an accepted risk. (If we had 40 people die in a chemical accident) ... that would be horrific. That would be totally unacceptable.

> E - 96. A lot of people are concerned about emissions off the site. People see other's flares and they think it's pollution and it's just steam. Try to explain that to people, but they're just terrified of chemicals.

Respondents believe that the community sees the firms as essentially all being the same, with very little to differentiate them. Most firms express the opinion that all chemical firms have a negative public image and that the differentiation strategies of the individual firms have largely failed. This being seen as all-the-same is a perception that most firms are not satisfied with, each believing to some extent that their behavior is superior or more explainable as compared to the other firms. The firms believe that bad behavior by any firm brings down the reputation of all the firms. As well, chemical firm disasters anywhere in the world, if reported in the media, damages the reputation of all firms. There is interest in increasing industry awareness and performance, but at the same time not carrying out tremendous and expensive environmental programs on a firm by firm basis because these programs would not be appreciated by the public in any case, and certainly would not benefit the specific firm directly.

> A - 142. Industry in this area, regardless of who you are, is all painted with the same paintbrush if anything should happen.

> B - 120. If the average performance of the industry is not acceptable, it starts to reflect on all the industry. So that's why we do a lot of sharing, and helping one another. You're only as good as the weakest performer in the group sort of thing.

That the public hears of a "chemical spill" and not a "firm A spill" or "firm B spill" is a complaint made by several firms. Greater cooperation between government and industry and the community is believed to be the required response.

> D -128. Industry's a driving force too. If one of them in the area did something really nasty and started being a bad actor, everybody suffers. So, it's as much in our hands as it is in government's, as it is in the public's. We all have responsibilities for our actions and realize that we are not an island. Everybody is affected.

The firms unanimously agree that the community chooses economic values over environmental values. Several respondents mention that the local community would not even exist without the industrial tax base. One respondent believes that this economic power should allow greater flexibility to the firm in its handling of community pressures.

> B - 21. If it wasn't for these plants the Fort wouldn't be anything. That's what people seen to forget. Firm B paid over a million in property taxes and two million for all the land they own. All that money goes in their (the community's) pocket.

Supporting the BAU model, community environmental concern is seen as somewhat cyclical, and currently in a low ebb compared to a few years ago.

> F - 39. And you see that (increasing interest in economic and employment questions from the public) in the public opinion polls. Environment has been dropping on a constant basis over the last five years.

These factors all encourage BAU: a passive community, the ignorance of the community regarding chemical practice, and the community basically seeing the firms as all being the same.

Other factors regarding the community encourage and support the SB story-line. In this scenario, the community is seen as informed and concerned, and at least some community members are interested enough to be involved.

> F - 31. ... although I don't know if there is a huge majority of people out there who are vocal. I don't think so. I think there are a very small minority of people who will actually take the time and effort involved to get involved. And so perhaps we're spending a lot of time and effort in trying to appease a vocal minority.

These few people can influence their neighbors, and can set standards for industry, at least indirectly through influencing government.

> B - 70. But the public drives the government. Right? Public concerns eventually translate into government regulations. That's how we perceive it.

> C - 5. I think they (customers or community) set standards. The community is very informed and very interested in what we do here.

> E - 23. One (driver for behavior) is that the general public has become more aware whether it be the chemical industry or other industry which would include steel, pesticides and so on. People have become more educated. Information is more assessable to people.

Most firms express the opinion that keeping the public informed is important to them, and part of keeping the community satisfied is to answer their expressed concerns. Most importantly, the community is seen as powerful, committed and able to influence the government and the regulators. SB is encouraged to keep this activist community quiet, and so keep government regulators out. Community stakeholder claims can be powerful, as shown by plant-closing controversies of the last several years when communities were able in some cases to block closures (Donaldson & Preston, 1995). Stakeholder claims need not be necessarily recognized by the firms to be powerful. The firms are fearful of community power even though this power is seen as dormant. This data shows that the firms generally believe community stakeholder demands, right or wrong, or even perceived as irrational, must be dealt with.

> D - 168. I think they (the firm) worry more about the community (rather than the employees). Let's face it, if you get the public hot on you here you might as well close the doors.

The government has established complex procedures that firms have to follow to gain public approval of their objectives and particularly any expansion activity. Many of the procedures are set-up to remove pressure from government - the responsibility of gaining public support (or at least public acquiescence) is completely the responsibility of the firm.

> A - 45. If we look at the legislation, what it actually says, lets use licensing as an example, OK, what it says is that we are supposed to make an application. You know we need a license to do this and this, put it into them, but its open to public review. If the local population says they don't agree of this, or we don't want this, or whatever, they will hold a public hearing. Which is time, money, quasi-judicial, the whole lot. That's what the process is, it's laid out there. What they're saying is, and what they're encouraging (corporate) people to do is, go find out ahead of time, tell us what those concerns are, address them in your application, then we've got all the information. Because the first thing that the senior bureaucrats say is "well is this going to be able to swing with the public?" "What evidence have you got that people are going to be satisfied with this?" "Are you going to keep them off my back?" Is the Minister of Environment going to have a problem on his desk or not, basically.

Most firms believe they need the publics' support and that the public sets the ultimate standard about expected behaviors. Most firms believe that pressure from the public influences government and so one way to reduce government regulation and enforcement of regulation is to reduce the pressure the government feels from the public. The firms desire industry consensus and unity in the political arena (Logsdon, 1985), and so present the industry position on environmental legislation through their associations, particularly the CCPA. Some firms discuss being pro-active environmentally as being involved in the political process. If the firms attempt to influence change by becoming involved in the public policy process, instead of either fighting change or accommodating itself to change, this behavior is sometimes seen as self-serving, therefore not in the broader public interest, and so could lead to public backlash. Respondents believe the public needs to be educated so that support is present for industry which in turn allows industry to survive.

> B - 80. So, I definitely think that we definitely don't want the government to be driven by the public that way. We want to work with the public. We also feel very strongly that for our future, for our long-term well-being, for the whole chemical industry, firm B has to try to turn public perception. So if you wanted to

> say that in the whole global picture we want to make sure that there is a future for the whole chemical industry period. So it's not so much shutting down individual plants it's looking at the whole picture.

In complete opposition to statements earlier, respondents from some firms also believe that the public differentiates easily between the firms.

> B - 121. We've done surveys that say that truly excellent performance is recognized by the public perception, you know. But let's face it, if the average, or if there are some problems within the industry, that will reflect poorly on the whole industry and you will get excessive regulation, and things that we don't want and don't need.

Good environmental behavior is essential to keep the community satisfied and not concerned about firm behavior. The firm is prepared to spend money to obtain a good public image.

> B - 134. My guess would be that we do get a lot of mileage out of that (the wildlife park) in public image. It sounds kind of nice to have the ducks and the foxes and the water right next to the chemical plant.

This desire for a good environmental image is still expressed as an economic benefit.

> B - 15. Well, the public perception is worth a lot of money too. If you work within firm B, you see a lot of that. Public perception is sometimes more important than what's really going on. If it looks bad, the company would do anything to avoid it.

This is the strongest influence for SB. Good behavior is becoming a way-of-life for some respondents, simply the way that work is done.

> D - 121. Once it becomes a way of life, it's a slow process, but it does become a way of life. We have gradually built our plant so we can recover anything. We've only allowed to dump a certain amount and it's a minute amount. ... There's an environmental report everyday.

The bad industry history leads to distrust, and so encourages demands for SB from the firms. Although most firms believe they are very good environmental actors, behavior at some firms is still considered to be below par.

> A - 38. We want to be in business in the long term and you have to have the public on your side. I don't know if it helps, the chemical companies are still the bad boys ...

> C - 34. No question the chemical industry has a little bit of work to do in regards to cleaning up it's act. Either from a perception standpoint or a reality standpoint.

Respondents are realistic about past practice and acknowledge that continuing public concern is justified.

> E - 85. I know that damage caused by chemical plants is irreversible in some places and they'll never be able to restore some of the places destroyed. But they do, nowadays, take into consideration the environment. I came into the industry at the turning point where there was a high regard for image as well as what they were doing to the environment. I can't imagine what it must have been like beforehand, but I've heard stories.

Firm B is different from the other firms in terms of image and public relations concern, because the firm believes the public relations function is critical, and is also very concerned about the media and activists. The audience for public relations is generally the public and the government. This data confirms earlier work (Dutton and Dukerich, 1991; Elsback and Sutton, 1992; Sutton and Callahan, 1987) that shows corporate relationships with the media involve a two-way influence process ... media exposure can affect firms, but the firms attempt to use the media to advance their own agendas. Although past research has identified the media as powerful because the media assigns importance to issues (Chen and Meindl, 1991), exposes gaps between business practices and societal expectations (Post, 1978), and shapes societal values and attitudes (Gitlin, 1984), the media is seen by the firms in this research as essentially irrelevant.

The other firms express less concern with community image or activist power even though confrontation with any pressure group or government agency can be very time consuming, expensive, and damaging to prestige. Benefits of cooperation with special interest groups that could lead to specifics such as cost-cutting recycling or other efficiencies, was not mentioned by any of the firms.

This data shows very little concern or respect by the chemical firms for activists or the media. Interest groups have long been viewed as a source of pressure for organizations (Selznick, 1957), and recent research makes the claim that interest groups play a "critical role in elevating concern about issues to a level at which there is institutional pressure for corporations" (Greening & Gray, 1994: 476). This sample group of firms is mostly indifferent to both interest groups and media, at least at the local level. This suggests the lack of organized interest groups or informed media able to confront the firms about environmental behavior, and so the possibility of activist or media pressure is only a potential threat. The local business media is viewed as inept by the firms, and this is both a help and a hindrance to the firms in that they are neither praised or condemned for their environmental behavior.

The community is identified as a stakeholder by all firms, but what this means in terms of the responsibility of the firm to the community is considerably less clear.

Most firms believe that their environmental behavior and environmental awareness is superior to the publics' behavior and awareness. Yet, despite the poor environmental behavior of the community and the general unconcern of the public to any firm specifically, all six firms see the community as having power even though this power is not exercised. This data illustrates that many business relationships with the "community" are vague and contradictory, and even difficult to classify as relationships. Similarly, local interest groups are considered as potentially troublesome, but not an influence at this time.

Good public relations is seen as calming the public and so reducing community pressure both on the firm and the government. All firms believe a good image assists them in achieving business goals in the community (expansion or new facility approval) and with the government (more favorable interpretation of expected behavior). The creation of positive image through public relations and impression management techniques is seen as much less expensive than creating a positive image through direct environmental action. Given the perceived public apathy about chemical firm behavior, and given the overriding economic concerns of government, the firms realize a large window for issues management instead of behavior favorable to the natural environment.

The BAU story-line is supported by beliefs that the community is passive and ignorant. The community is also seen as afraid and emotional and so the incentive for expensive and scientific 'good' environmental behavior is lessened as the community would not recognize this good behavior in any case. All firms are seen as being the same, and so firms are reluctant to risk competitive disadvantage by undertaking extra and expensive environmental behaviors. In any case, the firms believe that the community supports economic values and is only minimally concerned about environmental issues.

The SB story-line is opposite in almost all ways to the BAU story-line. The community is seen as informed, concerned and powerful. Firms can be and are differentiated by the community members. The firm needs a good image and good performance, and achieving this is difficult partly because the bad history of the chemical industry reduces trust in current firm practice.

4.2.5 Internal Pressures

The dual storylines that support both BAU and SB are also apparent in the firms' understanding and discussion of internal pressures.

The SB storyline is often stated as being a corporate value, yet the distance between this espoused value and theory-in-use is apparent to many employees. Espoused values are usually progressive and positive, but performance often is less progressive and more BAU.

A - 262. Well, this company has always been ahead of regulation. As far as I'm concerned, we've been leaders in looking out for the environment. We've been proactive.

B - 138. We believe in protecting the environment as a part of doing business. We believe that, in this company, is part of doing business.

B - 230. When you see it, that's really part of public perception. The company would like you to think it's the right thing to do, but from what I've seen they'll tell you that, but that's really not, um, it's the right thing to do if it fits in with what they want to do.

The firms agree with each other when discussing several indicators that deal with the dominant values in the firm. All firms claim that their number one priority is health and safety, and creating a safer workplace. This desire for health and safety as a dominant value contradicts earlier statements that production and making money is the number one priority and the only motivator. Most firms claim that they share environmental information with other firms, yet also talk of competitive advantage. The environmental performance of the industry is seen by some as too important an issue to be used as a competitive pressure. Some firms express the opinion that best performance by any firm should set a new standard that all firms should have to meet, and this first mover advantage is also mentioned as a competitive advantage.

Fear of falling behind other firms was mentioned by several respondents.

C - 121. As we become more knowledgeable and more credible, we'll figure out ways to be better than we are today. I mean, the whole notion of continuous improvement applies everywhere. If you don't continue to get better at what you are doing, you're going to get worse ... Our philosophy here is: If you ain't getting better, you're getting worse.

D - 37. Ultimately the only acceptable environmental performance is zero incidents. Zero spills. Zero releases. Zero leaks ... That most certainly is our firm. I think, in general, it's industry wide. Some companies are further along, some are further behind.

Fear of government prosecution was discounted, again in contrast to earlier statements about regulation being the major driver of behavior. Achieving compliance is usually seen as just one more piece of work that has to be done, just another challenge to be attacked as efficiently as possible. Corporate behavior for an environmental reason is processed in the same way as corporate behavior for an economic reason. Firms all self-identified themselves as pro-active, or at least pro-active to the extent possible given financial constraints (see Appendix K). Being pro-active is defined by some as having a long-term vision of firm benefit. This vision does not require a philosophical grounding or appreciation of ecological factors, but can be driven by economic considerations.

> B - 53. Well, prosecution is one thing, but certainly from our point of view, I really don't think that prosecution is the thing that keeps you honest. ... From our point of view, it comes right back to what you're told you have to do from a corporate point of view. Be honest. Be ethical. Do what you have to do. Comply with the laws. Once you've been told that's what you're going to do, then that's your job to do that.

> E - 147. It wasn't put together because of any fear of punitive regulation, it was put together because it was the right thing to do. And that's the reason for it (pause).

Personal responsibility is also noted as a driver, with all employees expected to share in the achievement of environmental goals. Leadership is seen as the most important factor regarding environmental behavior by some respondents, but others believe that top leadership is irrelevant. Several firms were emphatic that having long-tenured local top management was a major factor leading to longer-term strategic thinking about environmental practice. This strategic thinking can include awareness of potential liabilities without necessarily leading to improved practice.

> A - 276. It's clear that the initiatives I think, ... start at the top with the CEO and his staff and the decision that they are going to become a responsible citizen. ... So I think, certainly the initial um um thrust comes right from the very top of the company.

> C - 92. I think a lot of it has to do with leadership vision. If corporate (head office) didn't have that vision I don't think rightly or wrongly that we would be doing what we're doing, despite what the employees would want.

Several respondents mention the importance of leadership vision and commitment, but give more credit for corporate environmental behavior to corporate culture and history. This is different from findings in other research (Logsdon, 1985) which gives this credit to firm leadership. Respondents from some firms were convinced that local leadership was powerless in the face of head-office demand.

> B - 231. The company is still run out of the US, no matter what you think. Everything is controlled out of the US. Our managers here answer to those guys in Midland, that's where the head office is. Whether you like it or not, that's what happens.

Employees are unlikely to report each other for wrongdoing, although peer correction is common and expected if proper behavior or policy is not followed.

> A - 79. People watch over each other too, if someone is screwing up, or not doing something safely or spilling something, we will correct them. We won't turn them in, but we will correct them.

Some respondents believe that their firm has achieved as much progress on environmental programs as possible. Some respondents express the opinion that there are technological limits to the degree of improvement in environmental behavior still available to the firm, and that the most significant improvements have already been done. Several respondents discussed the unfairness of some regulations that demand percentage increases in improvement instead of some absolute standard that must be achieved. The argument is that firms with irresponsible prior behavior have an advantage in terms of having easier and less expensive goals to reach.

> B - 45: The latest trend, the industry trend, people start to conclude that there are a lot of them (firms) that can't do anything (more regarding the environment) without it costing a lot of money. You have to accept the fact. Right?

Most firms believe that technology allows for even greater firm environmental improvement, yet even the limits of technological improvement are fast approaching.

In support of SB, respondents claim that corporate values are influenced by employees and unions. Moderate to high concern in meeting employee expectation regarding environmental behavior is expressed by all firms. Executives from all firms express the belief that these expectations from employees mirror broader societal expectations, and the firms feel pressure to satisfy these employee expectations. As Freeman (1984) notes, a firm's employees are a diverse group of people whose interests and activities generally extend beyond their jobs: they are members of activist groups, they serve on community boards, they are involved in political activities, they are members of professional, trade, and service organizations, and so on. Therefore, employees have an influence on the organization that goes well beyond their performance at work.

> B - 260. Canada has the benefit because we have the regulation because we want them as people who live here. I don't want them dumping a whole bunch of crap out the back, and the same with the air. I live here.

> C - 3. It has to be more than that (perception). What we also don't take into account, I think, is the public has higher standards as well. If we're doing a rotten job here I think not only the public would be displeased but everybody on site would be displeased.

> C - 38. For me, it's personal values. There are morals that I have and I bring them to work. Having a group of people that believe the same thing is really what makes it happen. ... They bring the same type of ideas which is a respect for the

> environment, and a desire to understand how we are affecting it and trying to work with it.

Little concern was expressed by respondents about the Unions representing the workers in the unionized firms. Management's belief is that Union concern is more about wages and benefits than with environmental concerns. Increased pressure from Unions regarding environmental factors seems possible in the future. Only slight mention was made of any health and safety connections with environmental behavior by union members. Regardless, there is a growing awareness among operators of the link seen by management between good environmental practice and health and safety in the workplace.

> A - 283. Health and safety is number one over production in this organization. Nothing is done without safety being first and foremost. And that's a big change, because previously production was always number one. That's where you're going to get your money. Now, the thinking is more long term and we want to be in business for the long haul.

> D -124. Personal safety, environmental stuff and anything related to safety and environmental is top priority and they still stress that on every one of our mandates around here. They will not sacrifice safety for production, ever. And they are really strict about that.

Concern for employee families who live close to the workplace was expressed by some respondents (also see Williams, Medhurst, & Drew, 1993).

> F - 35. Our first priority is to be concerned about the health and safety of the people. So it's people on our site, people off our site, the communities next to us. And the government. And the people that use our products. And it's not necessarily in that order, it's who is closest to the end of the gun. It's not like we're picking employees over people in the community, it's just that if something happens here the employees are the first ones to feel it. Everything is guided by that principle that we've got to protect health and life over everything else. (If) we have a choice whether it's complying with the law or protecting someone's health, the law will be second.

Employee error causing environmental damage is cause for dismissal at some firms.

> D - 64. Well, ah, they won't sacrifice safety, equipment damage, any exposures, any environmental incidents. They don't want that. We're not to step out of line, or to cause, create, or avoid any of those situations. As far as making money, their (management's) true philosophy probably is to do the best you can, the easiest you can, and the safest you can. The three guidelines. And the safety requirements are very stringent. You don't stray off. It is reason for instant

dismissal if they catch you doing anything that could potentially cause an environmental incident, especially in here working in the control center.

Employees are well informed about corporate behavior because they are directly involved in the environmental practice of the firm. At the same time, all firms make efforts to keep employees well informed. Electronic mail is used in some firms, and information is considered to be always accessible.

> A - 172: Well, the thing is, that the people that work here obviously know what is going on. They know what we do to protect them and the safety precautions and all that because they are directly involved.

> A - 242: We shut down our department and have a meeting for an hour, an hour and a half, then we get the resource people to ask anybody we want for information from, you know, the health department or management department.

> B - 266. Obviously, firm B like any big company, puts out propaganda. With most of the issues, they will come and release the information to the employees. They basically say they want us to be knowledgeable and know what's going on because when it's released to the public, people will come to you and say "You work for firm B, what's with this new regulation?", and you look pretty stupid if you just stand there. So they give you the company's view of what is happening.

> D - 151. Well, now that everybody on the plant is on e-mail, so it is really easy to relay the information from our environmental people. ... so you don't have to be on shift, it can be on your mail and an awful lot of people are on the e-mail at home on their own systems, so we have access to it if we want. It's not the sort of thing that gets delayed. It's common knowledge pretty quick. The accessibility of the information has improved greatly around here.

The result of this combination of information with increased employee expectation is that employees are much more aware of 'correct' environmental behavior, and expect better behavior from each other and the firm.

> D - 161. Just the awareness of people on site alone has changed. There's things that we used to do that if we got caught doing today, we'd be dead in the water or even in jail.

Some respondents believe the firm must achieve immaculate environmental behavior, or they will be closed.

> D - 207. If you don't do it you're going to be shut down. It's that simple. It's coming to the point where you know where you have to spent it to stay in business.

D - 208. If a firm is not environmentally responsible it's going to create, number one, a lot of headaches for itself, but number two, it's going to kill itself with public image. And also it's going to have a hard time selling its product from that reason. It's going to bankrupt itself that way too.

The BAU storyline is supported by competitive pressures, head office demand, limits to improvements, and the most cost efficient improvements having already been done leaving only the expensive and less dramatic improvements. The SB storyline is supported by espoused values of both management and employees, a fear of falling behind the other firms, a sense personal responsibility and pride, a belief that employee expectation mirrors societal expectation, the link between the environment and health and safety, and good environmental information being available to all.

4.3 FINAL THOUGHTS ON THE DUAL STORYLINES

These dual storylines illustrate industry perception of an external environment that is in transition. Firms feel compelled to satisfy an increasingly broader group of stakeholders. Greater attention from firms regarding corporate social responsibility and environmental concern is expected by communities and governments, yet these same communities and governments retain a strong concern about economic and growth oriented interests. Both SB and BAU is expected of the chemical industry. The industry is struggling to achieve these often conflicting demands at the same time. Greeno notes:

> "Environmental management ... is becoming one of the most important strategic matters to develop in decades ... as corporations have discovered (that) the strategic, regulatory, liability, and competitive issues are all entangled and will become even more so" (1994: 44).

The paradoxical dichotomy between economic and ecological concerns for business reflects shifting societal expectation. The basic requirements for global sustainable society include stabilizing or reducing population, creating more social and economic equity between the developing and developing nations, and supporting community-based structures that protect the environment. These global requirements are not part of the social or economic agenda of Industrialized nations, but lower-entropy industrial systems and process is gaining acceptance. This is the paradox: Western society wants to retain its high standard of living (BAU) but with less pollution and cost to the environment (SB). These environmental concerns may be only short-term quality-of-life concerns (i.e. "I personally want cleaner air to breathe") but still exert demands on the firm. Western industrial society is not prepared socially or politically or economically to support sustainability, but is prepared to consider changing the ways that firms and corporations are expected to do their business, especially if the assumption is made that these changes have no effect on the daily practice of most citizens. Changing corporate practice is seen as a "free" good. This is not sustainable practice that leads to global sustainability, but is at least SB that results in less damage to the global commons (Hardin, 1968). This should be seen as good news for the natural environment, as 'good' environmental behavior need not be grounded in ecological awareness or philosophy, an unlikely occurrence in an economically dominated society.

The competitive reality of near-global capitalism demands non-sustainable values. Mass production of consumable product with ever constraining profit demands force non-sustainable values. The conflict is very broad. Society and communities demand increasingly sustainable values from firms and corporations that may be literally in their own backyards, yet still expect the on-going benefits of mass production and lower prices that are partly created by continuing practice that does not support SB. There is no easy resolution of this conflict. Sustainable values are being discussed but regretfully abated because of the still overwhelming BAU pressures. The challenge for the firms is to find common ground, a balance between the two. This balance is not yet possible because overwhelmed by the economic values of the competitive marketplace.

Although the chemical industry has made major changes in corporate practice regarding the environment, practice is still more BAU than SB.

To return briefly to previous comments about paradigms: systemic competitive practice is embedded in the economic paradigm, and this economic paradigm defines the boundaries of the search for 'reality'. In this case, the question of 'proper' or 'good' corporate practice is defined within the basic economic boundary of "The firm must make profit, regardless ...", and all else follows from this premise. In contrast, the basic biocentric principal is "The firm must not degrade nature, regardless...", and all practice and process follows from this boundary. Kuhn (1962) explains that paradigms are the basic forms and frameworks upon which humankind bases its interpretation of truth.

A useful way of viewing these conflicting and parallel forces for change (SB) and stability (BAU), is through the early work of Lewin (1951). Lewin's Force Field Analysis views problems as a product of forces working in different and often opposite directions. If the forces balance each other, then the status quo is maintained, but the organization moves in the direction of the greater force. To move an organization to a different desired state requires that the forces for change become stronger, or the forces against change are weakened, or a combination of the two. This is simplistic, but sets up the opposing nature of the forces. Most interesting in this research is that the forces encouraging SB or BAU are not different such as A versus B, but more likely are different interpretations of the same pressures such as A versus A, or B versus B. There are economic pressures favoring SB and economic pressures favoring BAU. These factors have been amply identified through the cases and analysis of the data of this research. The present state of the environmental behavior of chemical firms can be seen as being in flux, moving from prior practice that was completely indifferent to environmental or ecological concerns to behavior that takes at least some account of these concerns. Fully sustainable corporate behavior supporting sustainable society is still far away on the other end of the non-sustainable / fully-sustainable continuum.

The move to more SB can be seen as an organizational transformation. Because of external threats posed by the environment and a perceived misfit between the organization and the environment, changes are required. The organization is boxed here: organizational respondents argue that their economic paradigm in practice is congruent with society's expectation of 'proper' organizational behavior, and yet the firm is expected to do more than pay lip service to the SB paradigm, and this creates confusion and conflict with the dominant paradigm. Fundamental change and not incremental change is required to achieve SB, yet only incremental or tinkering changes are allowed.

These transitions correspond to significant changes in the primary tasks or goals of an organization and its strategy to achieve them (Hackman, 1984). Firms earlier acknowledged spending over 30% of their annual capital budget on environmental behaviors, and this is certainly a major shift from even a decade ago. It would be going too far to claim that not achieving this transformation will result in an organization not surviving, at least in the short term, because broader society and government support economic values over ecological values. This framebreaking change involves redefining the organization's mission (Tushman, Newman, & Romanelli, 1988). It seems clear that most firms have an arduous journey ahead of them in their efforts to implement sustainable strategic management (Kilmann, Covin, & Associates, 1988).

Moore and Gergen (1988) suggest four stages of transition, from (1) shock, to (2) defensive retreat, to (3) acknowledgment, to (4) adaptation and change. The firms in this sample exhibit a mixture of these four stages: (1) some firms experience demands for greater environmental behavior as a threat; (2) some firms are attempting to maintain their old ways and are refusing to admit the need for improved behavior; (3) some firms seek some value in the new expected behavior and search for ways to make these demands work, and are exploring new ways to view these expectations; and (4) some firms are keen to establish and implement new routines, and even to assist others in their struggle. This transformational change in stage four must overcome resistance in the organization's technical, political, and cultural systems (Tichy & Ulrich, 1984). The firms that accept this leadership role, or claim to, exemplify the transcendent nature of this shift, as they often do so by committing themselves to the long term pursuit of objectives that seem unattainable to others (Hamel & Prahalad, 1989).

Significant cultural change is necessary to enable firms to implement sustainable practice (Post & Altman, 1992), and this is third order change developing new values, new objectives, new structures, new reward systems, and new norms. Briefly, first order organizational change searches for new ways to reinforce current objectives, values, norms and structures, while second order change modifies current objectives, values norms, and structures to achieve an organizational shift. Third order change is different in that organizations achieve and perpetuate an entirely different qualitative state, the firm's consciousness moves to a new level (Bartunek & Moch, 1987). SB is a transformational change and is third order change, while the firms in this sample are struggling with first and second order change. The firms would prefer incremental change and adaptation (Tushman & Romanelli, 1985). This process of transformation is ongoing, endless and forever (Kilmann et. al., 1988), similar to the conviction expressed by some respondents that continuous progress is more important than any single SB achievement.

The firms find themselves in an ecological or economic dichotomy. This argument is linear and therefore unsolvable: growth versus no-growth; wealth versus beauty; Nature versus humankind; Nature as means versus Nature as ends. The firms and society are searching for a middle way (Hawken, 1993; Milbrath, 1990; Schumacher 1973; Wood, 1984). There are wide philosophical, ethical, operational, and structural differences between strategic initiatives based on growth and strategic initiates based on sustainability. Successfully instituting sustainable strategic management efforts in organizations often requires fundamental cultural change efforts (Post & Altman, 1992, 1994; Throop et. al., 1993). Sustainability represents the appropriate core value for an ethical system that allows for positive synergy between economic success and environmental responsibility in business organizations (Buzzellu, 1994; Daly & Cobb 1989, 1994; Gore 1992). Sustainability transcends the dichotomies.

The stages of progress toward the middle way is exemplified in the firms of this sample. Three stages of sustainable strategy progression are apparent:

First: Pollution prevention strategies - simultaneously conserve resources and reduce costs therefore results in competitive advantage and opportunities to establish social legitimacy.

Second: Product stewardship focuses on complete life-cycle of the product and process, is market driven because this allows firms to differentiate themselves from competitors, and

Third: Sustainable development strategies includes cost-saving, market differentiation and social legitimacy dimensions of pollution prevention and product stewardship plus focus from developing national markets to developing international markets (Hart 1994). A long-term vision of sustainability is the driving force, and these strategies are cumulative and sequential.

Finding sustainability requires a profound spiritual transformation. SB must become embedded in the mythological conscience that guides human thought and action.

CHAPTER FIVE IMPLICATIONS AND CONCLUSION

5.1 IMPLICATIONS

Ecological consequences blanket the global commons, not respecting social, political, or geographical boundaries (Stead & Stead, 1996).

The critical transformations from non-sustainable society to sustainable society is sadly underdeveloped in terms of theory and under-researched from the standpoint of empirical testing. Practice, such as CFC phase-out in North America and Europe because of CFC contribution to ozone depletion, is now beginning to follow theory and research.

There is little evidence in this data that the chemical firms undertake environmental initiatives because of any concern for the ecological long-term degradation of the biosphere caused by unsustainable practice. Ecological research documents the need to achieve a substantial reduction of adverse economic practice if ecological decline is to be halted (Brown, Flavin & Postel, 1991; Meadows, Meadows, & Randers, 1992). This decline is occurring as environmental, economic, and socio-political deterioration increasingly inter-relate to create a "downward spiral of social and economic disintegration" (Buchholz, 1993: 399). Yet business practice and management training continue to consider the ecological and economic interface as peripheral to the business of business.

Unsustainable corporate and societal practice resulting in degradation of the environment and the ecology of the global commons is allowed by all governments, although regulated to varying degrees in different countries and jurisdictions. Despite well publicized espoused values and claims, voluntary pro-active environmental practice by corporations beyond anticipated regulatory and economically compulsory practice is unusual.

The broad cause of environmental problems in Western society is the domination of a paradigm that believes in unrestrained growth and development, and this in a finite world. The chemical firms in this sample share these values. The economic values of growth and development are broadly supported by all political ideologies, but particularly by governments supporting the competitive demands of market economies. These values form the grounding for many corporate ethical perspectives with regard to the economy and the environment, and guide decision making in both public and private sectors. Western business practice has evolved over many decades in an environment of plentiful natural and human resources, growing demand for goods and services, and minimal interference by government or foreign competition. This economic history "provides the basis for decisions about the uses and abuses of the environment" (Buchholz, 1993: 69). The literature on corporate social responsibility offers homilies about good ethics being good business, or quasi-economic arguments that good corporate behavior leads to an improved society and therefore to long-term business viability, or that good environmental behavior results in less government regulation. All these arguments are consistently overwhelmed by short-term economic arguments (Buchholz, 1993). The chemical firms in this sample, although acknowledging these social responsibility arguments, are in regulatory compliance mode, and are driven by present and anticipated economic demands.

Corporate social responsibility has been a disappointing theoretical concept regarding this research. Corporate social responsibility to most respondents in firm F means only the idea of satisfying legal responsibility, while most firm B personnel claim to view social responsibility in a broader and more ethical sense. The concept of corporate social responsibility is not any clearer to most academics than it is to most managers, and a framework for on-going collection, comparison, or analysis of data is not available. Basic questions such as “social responsibility to whom?” and “social responsibility to what?” are unanswered. For the construct of corporate social responsibility to be effective as a change agent, managers and academics need meaningful responses to these questions. For the firms in this sample, corporate social responsibility is usually subsumed as a marketing tool, or issues management or public relations, assisting the firm by providing politically and socially correct discourse while corporate personnel search for economic benefit and payback. Corporate social responsibility provides a language for discussion and even explanation of corporate behavior, but economic imperatives provide the lever for actual corporate behavior and action.

Although espousing preparedness and desire for sustainable behavior, the firms often claim inability for major change because of competitive or cost pressures (see Appendix K). The firms claim they cannot escape these competitive and cost pressures and remain economically viable. It is feasible however that the complete chemical industry could achieve this shift by changing behavior in unison, and this change could be forced by government or through voluntary compliance through industrial organizations such as the CCPA. This leaves the question of foreign competition unanswered. This data suggests that public indifference to differentiating between the firms is one factor forcing consensual shift by most firms in unison, often prior to government demand. The Responsible Care guidelines of the CCPA serve as an excellent example of industry voluntary change.

A transformational shift in values, reflected in the policies and procedures adopted by government and industry, is needed to achieve an ecological and economic balance more sympathetic to sustainable society. The firms believe that government is unwilling or unable to lead this paradigm shift. The public is similarly seen as too disinterested and disorganized to demand this shift. The firms are left with vague societal and government demands for "better" behavior, yet without the economic and competitive structures and systems needed to achieve this shift. The rules and expectations are in flux, yet systems and support are not available to support this change.

A significant understanding from this data is that more ecologically sustainable behavior can be achieved by firms, though for reasons that in most cases are completely neutral regarding ecology and the natural environment. The CCPA is leading a change to greater sustainable practice, and within the accepted economic model, but as a pragmatic and strategic move and not as a philosophical or ecological move. Economic and ecological sustainability are dealt with as two separate issues requiring different premises and understandings by the firms in this sample. Yet, regardless of this lack of ecological sensitivity, greater sustainable practice is slowly evolving.

The challenge for academic researchers is to assist business organizations and corporations to undertake this shift. Given massive societal and corporate inertial pressure in favor of an economic paradigm that supports more "business-as-usual", what can academic researchers, particularly those in business schools, contribute to this change? If a shift to sustainable business practice is worthy of discussion, and if one purpose of academic work is to contribute to societal well-being, what framework will assist academics to make a meaningful contribution? The answer is not complicated. Academic research simply needs to reflect the core understanding that the survival of the human species is dependent on human behavior becoming compatible with biospheric capacity. This is only a shift of emphasis. Business research often expresses concern about individual and societal benefit from organizational practice, and this needs to be heightened to include another level of awareness and concern about the biosphere. Organizations need help to overcome resource, political, institutional, social, and philosophical blockages that impede their transition to sustainable ecological behavior. The discipline of organizational analysis holds the greatest promise for improving our understanding of how sustainable corporate behavior might be achieved.

This data confirms yet again that organizations are open systems strongly influenced by their environments. This data confirms that systems of inter-relatedness exist between business and society, that these systems matter, and that organizations consider and interpret a wide range of pressures prior to determining behavior. This data also confirms that significant forces influencing organizational behavior past the compulsory regulatory stages are not 'rational' pressures for more effective economic performance, but are social and cultural pressures to conform to societal expectation (Powell and DiMaggio, 1991; Zucker, 1988). The firms are in different places in terms of behavior, although all behavior if placed on a continuum shows a distinct trend of lesser SB firms copying and becoming more like the SB firms. The six firms all respond differently to the same general pressures, and this response is determined by the degree of importance given to the pressures.

Organizations interpret their environment and act based on their best judgment of how to improve their chances of survival. This data confirms that chemical firm change regarding environmental behavior is largely a response to external politically or socially created pressures. This data shows that the chemical firm executives make constrained choices (Hrebeniak and Joyce, 1985; Marcus, 1988), and these choices are made in an attempt to mitigate the influence of suspected future influence of pressures such as government or public opinion on the firm. The executive respondents in this sample certainly do not have open-ended choice, but do have wide ranging choices in terms of how to respond and what to respond to once certain minimum requirements are met.

Most firms in the sample see environmental compliance with regulation and even "buffering" over and above regulatory requirements as a necessary component of 'good' business management. Again, we confirm that no organization is self-sufficient, and all engage in exchanges both economic and social with their external environment as a condition for survival (Meyer & Rowen, 1977). These exchanges include relationships with other organizations and institutional forces. The chemical firms in this research are active in trying to determine their own fate (Scott, 1992), particularly through future scanning and preparing now for anticipated change in their regulatory environment. Although several firms believe they have control and can change their own environment, through negotiation with regulators for example, as claimed by some resource dependency theorists (Aldrich & Pfeffer, 1976), this data only supports that the firms make these claims and not that they are effective. This "control" is more concerned with timing and the "how" of compliance with regulatory demand, not that the change itself will occur. The firms are convinced that they have little control over community, media, or activist perception of their operations.

Hrebeniak and Joyce (1985) suggest that the strength of external environmental pressures and internal managerial choice vary independently, and this data confirms that firms can have both high levels of external pressures and high levels of managerial discretion (Hitt & Tyler, 1991). This data confirms Oliver's (1991) contention that judgment by top management, combining with institutional pressures, results in firm variance in responding to similar pressures (also Judge & Zeithaml, 1992). Although all firms in the sample face similar pressures, managerial and leadership discretion is allowed in choosing which pressures to respond to, at least once minimum expectations regarding economic and legal requirements have been met (see Appendix K). This discretion is allowed partially because of conflicting expectations from stakeholders (Powell, 1988), partly because of community apathy, and partly because of government willingness to negotiate enforcement standards individually with the firms. The discretion is allowed, and firms take advantage of this flexibility in different ways.

5.2 CONCLUSION

The environmental consequences of unsustainable corporate practice are not completely ignored in industrialized societies. Severe pressures on chemical firms constrain and identify limited acceptable environmental behaviors for these firms. Governmental regulation and investor demands are the two major external pressures that constrain organizational choice. Corporate history and culture combined with fiscal ability are internal constraints on organizational choice. Once a certain minimum standard of behavior is met, the different firms with their different strengths and abilities, respond in different ways. Leadership commitment and understanding within firm constraints is shown as critical in achieving behavior past the minimum standards for most firms.

Past certain minimum regulatory and economic standards, the response of chemical firms to pressures for SB is idiosyncratic to each firm. This data supports a model that demonstrates the power of external forces to pre-determine the choices available to the firm. The data also documents that chemical firm response is a function of internal firm interpretation of the power of these pressures. These pressures are interpreted and thus responded to in different ways by different firms.

The environmental behavior of all firms is constrained by two basic external pressures. The first pressure is government demand for specific types and levels of behavior regarding the natural environment. The second pressure is competitive and investor demand for minimum levels of economic performance. These demands are primary requirements for longer-term corporate survival. If the firm does not comply with government environmental regulation and does not provide a reasonable return to stockholders, the firm will eventually close. The chemical firms in this sample experience these regulatory and economic performance demands as irrefutable. These irrefutable demands result in a short-term and compliance focus regarding SB. The economic imperative particularly demands a non-ecological and non-sustainable focus.

The regulatory and economic demands are visible. The benefits of added voluntary SB and the accepting of additional environmental and ecological responsibility are less visible. However, short-term benefits of additional SB include that the firm is "trusted" to meet government standards and is allowed, after negotiation, to do so in ways most cost-efficient to the firm. The firm also faces less risk of firm or personal liability from future costs or fines. The investor benefit of meeting additional environmental demands is mostly long-term and includes: personnel of the firm having pride in their work and the firm, and additional quality of product, which may lead to the survival of the firm. This "ethical" and "discretionary" behavior (Carroll, 1979) addresses other stakeholders of the firm including the community, media and activists, employees, bankers, and insurance firms, as well as the environment itself.

The pressures identified in the data all relate to these economic and regulatory pressures in some way. The community is viewed as powerful because of its ability to influence government and ultimately regulation. Customers are the most important pressure for two of the firms, and this concern supports the economic marketplace and stockholder demand. The Internal pressures noted in the data can be viewed as a response to these other pressures.

This data shows that all firms, including the most pro-active firms, are driven by pragmatic economic concerns. Although the pro-active and socially enhancing stance is likely "sold" as being undertaken because the firm has philosophical concerns and wants to be seen as a socially responsible corporate citizen, no such philosophical underpinning is found.

The creation of the socially responsible and sustainably behaving corporation is only a part of the challenge facing mankind. Global human behavior is creating life-threatening ecological danger to humankind, and improved corporate practice alone is not the solution. An overarching change in world view and sense of human possibility is required to bring about a sustainable world "without compromising the ability of future generations to meet their own needs" (WCED, 1987: 8).

RESEARCH NOTES

Research Note 1: I believe that all research is tainted to some degree by conscious or unconscious researcher bias. My particular world-view is informed by certain beliefs about the ecological state of the world, and these beliefs and values are reflected in this work. I have convictions about the societal and corporate value and behavior shifts required to enhance the likelihood of sustainable practice. This perspective recognizes the responsibility of past business practice regarding our present ecological situation, and the role that business interests must play, along with changes in individual and societal practice, to achieve sustainable development.

Research Note 2: For example, in the early stages of this project it became apparent that particular attention would be given to pressures that are not prescribed by law or immediate economic necessity, such as fear of potential corporate or personal liability, or anticipation of increasingly stringent future regulation. The response to these pressures can be proactive, reactive, inactive or even unfavorable to the natural environment. The framework that evolves from this research can be used to understand corporate response to these less direct pressures. This research provides examples or guides for behavior that can be copied by other organizations in related fields (Strauss and Corbin 1990).

Research Note 3: Many response options are available to executives, and making substantive changes to production practice resulting in lessened environmental impact is only one of these options. Others include government lobbying, public relations attempts such as information campaigns, and minor cosmetic changes such as landscaping and beautifying production facility sites.

Research Note 4: For example, the parts per million allowable under regulation for smokestack emission, much less the enforcement of these differing regulations. is different in Alberta than in Ontario, and different again for American, European or South American facilities.

Research Note 5: Corporate management is becoming more complex, particularly since the "simpler" concern with stockholder well-being is being replaced with the often ambiguous and even internally contradictory concept of stakeholder well-being. Active stakeholders in the organization each impose their own demands on the corporation and what is beneficial to one stakeholder may be of little benefit or even detrimental to another.

Research Note 6: I believe that research in Organizational Analysis should use a broad contextual approach which stresses a need to understand how organizations and societies evolve together, rather than presuming a one-way adaptation of the organization to the environment (Morgan and Smircich, 1980). The determination of causality within this contextual approach is problematic because it is usually impossible to find a point at which causal forces begin. I am supportive of this holistic approach, but my epistemology is positivistic enough to allow belief in some degree of determinism in corporate policy making. That is, certain combinations of factors over time can be given credit for certain organizational behaviors, even as these causes and effects are interactive.

Research Note 7: Fieldwork entails high costs to the researcher in transforming raw observations or interviews into usefully analyzable data (Brewer and Hunter, 1989). With data collection it is impossible to observe and record everything, and even if we could, we would not necessarily know what it all meant. Similarly, without becoming hopelessly complicated, no theory can include all of the concepts that might possibly aid our understanding.

Research Note 8: "We are all used to the normal, extensive literature review to ascertain gaps to fill in, hypothesis to test, and ideas to contribute to, in descriptive and verificational studies. In contrast, the dictum in grounded theory is: There is a need not to review any of the literature in the substantive area under study" (Glaser, 1992: 31).

Glaser reasons that during data collection and analysis, the emerging grounded theory must be free from the demands of related literature and its findings and assumptions, at least initially, in order to allow the data to conceptually determine the best theory. Glaser feels strongly about this difference of grounded theory from descriptive or verificational studies. The directive is exact: do not do a literature review prior to analysis.

Research Note 9: As well, the researcher had reached conclusions about the necessity for world-wide sustainable ecological development, as well as holding a perspective on the responsibilities of industry to solve or assist in the correction of these ecological concerns prior to the commencement of the research. The researcher has beliefs about the interconnection of industry with government and society.

Research Note 10: My judgment is that the interviews were interesting and informative for both parties in most cases, and the questioning by the researcher welcomed as an informed perspective perhaps not often available to respondents.

Research Note 11: There was no way to guarantee that these individuals were the best informed, most influential, or most forthcoming with information, but they were available and prepared to offer their assistance with this project

Research Note 12: The pre-interview media and archive search balances in part the possible firm-serving bias of informants, or at least suggested sufficient background and context to allow to researcher to ask detailed questions to arrive at a fuller understanding.

Research Note 13: Early judgments might prove incorrect and so skew all future interpretation, so care was taken to be cautious and slow to reach tentative conclusions. This was a very difficult part of the analysis process, the hesitation to make judgments, offset by a desire to "get on with it", and progress.

Research Note 14: This reading and rereading, then the coding and recoding of all transcribed interviews created a problem of lack of firm specific awareness. I could remember that someone somewhere had said something very similar, but was not sure exactly who had made the comment, or which firm the individual worked with, requiring yet again another search through the coding summaries.

Research Note 15: Throughout all interviews, descriptive notes were continually written. Martin and Turner (1986: 142) encourage the investigator "to commence by concentrating on detailed description of the features of the data collected before attempting to produce more general theoretical statements", as a first step to researcher understanding. I agree that the "discovery" of grounded theory starts with this description and researcher understanding.

Research Note 16: What Strauss and Corbin neglect to say is that more than a single theoretically valid interpretations is possible, and the researcher must use judgment to determine which is the most valid and most complete.

Research Note 17: My judgment is that Denzin is correct, as both individuals are "playing a role" in some sense, yet the objective of the interview from the researcher's perspective is to accept the role and use it to gain honest information from the respondent.

Research Note 18: The researcher must learn to be quiet, listen, and not debate unless the debate might clarify or expand issued already raised. The researcher must be taken seriously, in my view as a professional person with worthy interests and concerns, yet one who is open-minded and open to learning from the respondent.

Research Note 19: The transcribing of these tape recorded interviews took about seven hours per interview hour. The first dozen interviews I transcribed myself, with the balance being shared between myself and an assistant, who did about twenty-five of the transcripts in total. These transcriptions were done as soon after the interview as possible. Transcriptions done by the assistant were all reviewed by me while listening to the tape. Minor corrections were sometimes required, most often in the spelling of names or chemical processes. Punctuation, often a judgment call in transcribing, was sometimes changed to achieve the understanding closest to my own recollection or what was reflected in my notes of the interview. All interviews were conducted by myself. Notes made during the interviews also helped to understand delays or confusions in the transcript, for example when the respondent talked on the phone, left the room for a minute, or when some third party interrupted the interview.

Research Note 20: I am convinced that greater depth by way of more interviews per firm would not have added a great deal to the insights gained. Greater insight may have been gained by examining another three or four firms, and doing another six or seven interviews per new firm. As well, one is never completely confident that a better interview could not have been done with any given respondent, as perhaps better questions or follow-up questions asked. Overall, I am pleased with the quality and depth of the fifty-three interviews that ground this research.

Research Note 21: In stage one the interviews were unstructured. No exact set of questions was employed, nor were questions asked in a special order. This allowed me a great deal of freedom to probe various areas, and to learn what was considered important by these individuals. These initial interviews gave the flavor of the work to be done. In stages two and three, the interview format became much more formal.

Research Note 22: Both action and non-action is significant to this research as non-action signifies a choice by the corporation to not take action regarding the natural environment. These non-actions may well be the most interesting instances of firm environmental decision making, as pressures were deemed to be non-influential enough that they could be ignored. These examples were usually found in cross firm comparisons, in that five firms for example might have a Community Advisory Panel, and one firm might not. Instances of specific firm non-action were sometimes identified through interviews with non-firm informants, particularly environmental activists.

Research Note 23: My sense is that few of us speak as coherently or as well we think we do. Transcripts, because of their personally exposing nature, might cause respondents embarrassment because of these non-content reasons. This may cause them to rethink their agreement that their transcripts could be used, their participation or the participation of their staff in the research project itself or perhaps to become more reticent in future interviews.

Research Note 24: What is reported in the transcripts is not at issue, but the "clarification" offered to interpret the words used may be of benefit.

Research Note 25: One cautionary factor is that most archival records are produced for a specific purpose and a specific audience (other than the researcher). These conditions must be fully appreciated in order to interpret the usefulness of any archival records (Denizen, 1978).

Research Note 26: Responsible Care: The chemical industry has attempted to respond to pressures from environmentalists by creating its own set of environmental practice guidelines. These principles are known as the "Responsible Care" program and are approved by over 200 companies in the United States and over sixty in Canada. Some critics of Responsible Care claim that the program to date reflects more public relations than progress, mostly because compliance with the Responsible Care Principles is voluntary by members, no timetables for total compliance have been set, and the CCPA in Canada and the CMA in the United States do not sanction members to do not comply. Recent changes in Canada now see some CCPA audits of practice, although these audits also are voluntary and must be requested by member companies. This program is monitored and sponsored by the Industry without interference from the respective governments. This Canadian initiative has been perceived as being so successful that it has been adopted by other countries including the United States, Australia, New Zealand, and England.

Research Note 27: Having the names of individuals from the community because of media search was helpful even though that did not directly lead to interviewing. In all cases I combed back through previous contacts to find a person who could personally recommend me to the community person.

Research Note 28: Of course, politically "correct" and astute corporate elites are also well aware of "desirable" responses, and this is often a problem in any qualitative data collection. Impression management is a science that is alive and well in the chemical industry.

Research Note 29: I outlined my own beliefs and grounding at the beginning of this research project. This grounding includes the belief that economic development must be sustainable and subservient to ecological demand, that much of current ecological degradation is caused by unsustainable individual and corporate practice, and that change in the philosophical grounding and management of our corporations is a necessity. Not being aware of ones own personal bias, I believe, can be a fatal flaw in almost any research project.

As a general note, I found that being an academic in a business faculty caused more suspicion with community people and environmentalists than with chemical firm personnel. That is, as a researcher from a business school, I was initially seen by both groups (firm and activist/community) as being more sympathetic to the business position. Further, the firms seemed willing to reach out and explain or justify their position while community respondents were generally more reticent (or perhaps only less sophisticated) in their responses.

Research Note 30: At first glance this replication seems unlikely, yet the data deals with the industries' interpreation of pressures regarding environmental behavior, not just the firm cases or the individuals interviewed specifically. The specific individuals interviewed are secondary to our objective of understanding firm behavior, and so changes in personnel or minor changes of context or intervening variables can be handled by the emerging theory.

Research Note 31: This unsureness is itself interesting, particularly since we often assume in management studies that most decisions are rational and fully understood by all those involved. Even if this process is understood as to the "how" of decision-making, often the underlying "why" was not understood.

Research Note 32: Access is generally concerned about researcher access to the system and the members of the system, but the converse may be equally problematic although generally ignored. There may be some who want or could give vital information to the researcher but are not selected or known by the researcher. This problem was not satisfactorily resolved, although most operator-employee interviews in stage three were set up through union representatives and not corporate management, and this may have helped resolve this problem.

Research Note 33: Grandfathered firms are allowed to either ignore new regulations or are given exceptional exemptions to give them time to achieve compliance. This creates a two-tier system of regulation, one for new firms and another for the older firms, and of course various stages in between. Chemical firms are not given these exceptional clauses, and certain levels of performance are expected by all.

Research Note 34 As an example, although all firms identify government regulation as a pressure influencing corporate environmental action, two firms consider government pressure the most important influence of all identified pressures, two firms consider that government regulation is somewhat important but not critical, and two firms consider government regulation as almost irrelevant and not very important at all.

Research Note 35: This final choice of one hundred indicators evolved from a list that originally had over 260 indicators. These indicators emerged from the coding of the transcripts, so in all instances from the data created by the interviews. Some were redundant or very similar and so could be combined. Many were of only low or medium interest to only one or two firms, and so not general to most firms. The purpose of the indicators was to identify concerns of each firm, but also to allow comparison between the firms. The construction of categories from various combinations of indicators was a slow and lengthy process, being highly interactive and repetitive.

Research Note 36: ISO 9000: Many firms are attempting to achieve ISO9000 certification, which allows the firms to bid on government and other contracts. ISO 9000 sets an international standard for quality practice, and this is expected to lead to customer satisfaction.

Research Note 37: Bhophal: A 1984 explosion at a Union Carbide facility in India killed hundreds and injured thousands. The full devastation will likely never be known. This incident raised the consciousness of most publics world-wide, and caused even greater concern with the practice and safety of chemical facilities all over the world. Union Carbide divested itself of many chemical operations in the years following this accident, and now is a much different firm than it was at the time, although still partly in chemical production.

Research Note 38: Sludge Ponds: These storage ponds were established to store liquid waste. Some evaporation and settling was expected, and this would assist this eventual permanent disposal. What was not expected is that most sludge ponds eventually broke down, even though clay lined and more recently clay and plastic lined. Ground water contamination is common around older sites. A recent Edmonton example happened when seepage from a sludge pond drained to a gravel and sand pit, and some of this sand ended up being used by Edmonton Parks and Recreation as sand box sand in several parks, supplying children with toxic sand to play in. Many firms are stopping the practice of using ponds, and cleaning up the sites of the ones they used to have. Even with practice at regulatory levels, firms are finding themselves liable to massive clean-up costs, demonstrating that governmental compliance is no guarantee of non-liability.

Research Note 39: Bata Executives: Corporate executives and two Board members were sentenced and jailed for irresponsible environmental behavior in 1992. The firm was discovered to be dumping toxins into a river running close to an Ontario plant, and despite repeated warnings continued the practice.

Research Note 40: CCPA: The Canadian Chemical Producers Association has sixty-four members in Canada, with twenty-one in Alberta. Most plants in the Edmonton vicinity are branch plants of larger conglomerates. The association represents the members both on technical matters like Environmental compliance, Labor and Health with the governments, and Alberta Energy, and also with the Business side with government taxation offices and Economic development and Trade. The main accomplishment of the CCPA, aside from the lobbying efforts with government regarding environmental and trade standards, has been the establishment of the Responsible Care guidelines which have been adopted by many countries around the world.

Research Note 41: Valdez: In March of 1989 the Exxon Valdez fouled Alaska's Prince William Sound with over eleven million gallons of freshly pumped crude. As a partial consequence of the spill, Exxon Chairman Lawrence Rawl was summoned to appear before the United States Congress to explain the disaster, Exxon's annual shareholder's meeting was disrupted by angry demonstrators, vast amounts of Exxon's assets were deployed to support the Alaska cleanup, and the name Exxon became synonymous with bad environmental practice. Exxon recovered less than 15% of the spill, and this after spending close to two billion dollars. Most disturbing, another spill could happen at any time, and we are no better prepared as a society to deal with a disaster of this magnitude than we were in March of 1989.

The Valdez spill has led to the Valdez Principles being drafted by several leading environmental organizations. Firms in many industries are being pressured to adopt these principles of corporate behavior. The Valdez Principles are: Protection of the biosphere; Sustainable use of natural resources; Reduction and disposal of waste; Wise use of energy; risk reduction; Marketing of safe products and services; Damage compensation; Disclosure; Environmental Directors and managers; and Assessment and annual audit. The CCPA claims that their own industry specific Responsible Care guidelines are more applicable to the practice of their members, and so few firms support to Valdez Principles.

Research Note 42: ISO 14000: ISO 14000 is a collection of international standards that deal specifically with environmental practice. Few companies have achieved these standards. Standards applicable in North America are expected to be followed by firms globally.

Research Note 43: Closed Loop System: This is a process system that does not any resources from outside the loop, so a "closed" system. The loop is not really closed in that water is taken in at the beginning of the process, but the theory is that the process of cooling and purification allows the re-use and re-use of the same water and other products such that there is no discharge into the river. Most firms offer a purification system and then waste water is returned to the river and "clean" water taken in to replace the discharged water. The closed loop system allows the firm to not report to the government on emissions reports, and also to ignore many bureaucratic problem dealt with by the other firms in the area. This is considered the way of the future, and this technology and knowledge will presumably be sold to other facilities world-wide as regulations tighten.

Research Note 44: Emergency Response: Emergency Response is part of the CA/ER programs which are carried out at several of the plants in the sample. CA/ER means Community Awareness / Emergency Response. The basic premise of CA/ER is that the public has the right-to-know about anything that can affect the health and safety of the community. These programs bring plant personnel together with community leaders to keep the community informed about the plant operations. Emergency Response programs usually include an automatic telephone dialing system to direct dial immediate neighbors if there is a release or any other problem. Information packages assuring the immediate community of facility readiness to handle an emergency are sent out at least once a year.

Research Note 45: Community Advisory Panel: Community Advisory Panels are another offshoot of the CA/ER programs (see 3-12 above). Community "leaders" are chosen by the firm involved, and then this CAP is expected to set its own agenda and explore various areas of concern to the CAP group itself. There is little evidence that these groups are considered responsible to the community at large by the community, but are at least an attempt to communicate with community members in an organized way by the firm, and does create a degree of feedback of community concern to the firm.

Research Note 46: Flaring: Most flaring in the Scotford and Fort Saskatchewan area is the burning off of greenhouse gases, the vast bulk of which is carbon dioxide. This gas and nitrogen oxide are byproducts of power production and chemical reactions in the chemical process, and the firms would mostly claim that little can be done without changing the production process, and this cannot be done without affecting product quality. Flaring is considered an eye-sore by many community members, and is certainly a constant reminder of chemical facility creation of noxious gases that are burnt off. Flaring often creates roaring noises, and this is can be aggravating to community members.

Research Note 47: Cradle-to-Grave: The cradle-to-grave focus is on broad process redesigns that reflect the life-cycle of how a product is developed, manufactured, and used, and the impact of that product on the environment. This life-cycle analysis is often done using a stakeholder-type framework, looking at the needs of customers, employees, shareholders and the public, to identify what environmental strategies hold the most promise and where major change is needed.

Research Note 48: Agent Orange: A product made by several companies for American Army use in the Vietnam War. It has been shown that Agent Orange has serious permanent side effects to those handling it if not handled in a "safe" way, resulting in many lawsuits and even class action suits against several American companies. Settlements running to the millions of dollars has already been paid out, and the lawsuits continue.

Research Note 49: Wildlife Park: By contributing land, capital, and manpower to various projects like wildlife preserves or tree-planting exercises, some firms hope to be seen as demonstrating good faith with their local communities. These exercises are usually discussed in terms of public relations and visible corporate face, with very little concern expressed about the wildlife or the ecological benefits of the projects themselves.

Research Note 50: National Emissions Release Inventory: The Toxic Release Inventory measures a companies emissions of certain chemicals. This is only a start to emissions testing, and only measures about three hundred of the 60,000 plus chemicals registered in the country. As an example, the measured toxic emissions from DuPont in 1991 in the United States alone was 254 million pounds, only down 6% from 1988 totals. Despite very glossy and well-publicized environmental statements, measured by these toxic releases DuPont remains the biggest single polluter of any corporation in the United States.

Research Note 51: Director Liability: Laws have recently changed in Canada and the United States allowing Directors of publicly traded companies to be held personally liable for the irresponsible behaviors of the corporations on whose Boards they sit. Prosecution is rare except in instances where clear evidence is available that Board members were aware of corporate practice, were aware of certain consequences of actions they chose to take, and their purposeful ignoring of the environmental consequences of their actions. The ignoring of governmental compliance demands after several warnings, especially if the Board were aware of the warnings, would be an example of Board lack of due diligence that would possibly lead to charges being laid (see 3-7 above).

Research Note 52: Multi-tasking: Simply, employees are trained in various areas of facility operation. A fork-lift operator for example may work in the Accounting department for several months per year. This creates a more flexible work force for the corporation, and is expected to result in more satisfied and motivated employees.

Research Note 53: Delivery System: Different types of chemical product are delivered in different ways. Most, by bulk, are delivered by train rail cars which lead to the dramatic headlines when train derailments occur, and complete communities are evacuated. Specialty chemical product, or small batch production, is still mostly delivered in steel drums. Because of the toxic nature of much chemical product these drums wear out if used repeatedly, and eventually cause leaking and other releases.

Research Note 54: Liability for Previous Practice: The best example of current liability for previous practice, legal or illegal, is the constantly astonishing reading regarding the EPA Superfund sites in the United States. A common problem occurs when toxic chemicals are buried in steel drums, and these steel drums over time erode and leak, creating serious environmental problems including contaminated ground water. The owner of the property, regardless of who or which firms created the environmental hazard in the first place, is responsible for the clean-up of the contamination. As an example, DuPont, one of the largest chemical firms operating in the United States, is alone potentially responsible for over one hundred Superfund sites.

Research Note 55: Malcolm Muggeridge Award: One of dozens of environmental awards that North American firms and institutes award to each other yearly, usually for best practice or most improved practice. There is wide variance as to the criteria used to determine the judging of this practice. Active public relations work usually accompanies the awarding of this and other awards, especially for "green" practice.

Research Note 56: Love Canal: Likely the best known contaminated site in the United States. A residential community was built on top of a dump site that contained toxic chemicals. Chemicals and other toxins started to leak into basements, and "bubble-up" in back yards creating a huge health hazard. The community was completely evacuated, closed off, and clean-up undertaken. The original polluters including Hooker Chemical were mostly defunct firms, and the clean-up was essentially paid from out of government funds. The community has now been declared "safe", and houses in the area are again being sold to the public.

Research Note 57: Stainless-steel Tankers: Firm E has developed its Porta-Feed delivery system, and has re-trained drivers and other workers to manage to program properly. These stainless steel tanker trucks are designed with sloped bottoms so that very little residue product is left after delivery of a load of product. This reduced waste results in less clean-up and less waste of product, which is seen as a win for both the chemical firm and the customer. Because of this complete control of product delivery, firm E has eliminated the need for over two million fifty-five gallon chemical drums. Eighteen million dollars has been invested in this program, and now includes fifteen- to eight hundred-gallon units, Firm E claims to have reduced its hazardous waste 17.8% from 1990 to 1991, mostly because of improved delivery practice.

Research Note 58: Material Safety Data Sheet: These information sheets accompany product when it is delivered to customers, and details all relevant information about the content of the chemicals involved, recommended practice for spills or other contingencies, and even information about potential consequence if the product comes in contact with certain other products. Safe handling and consumer and employee safety is the main concern that has led to these MSDSs.

Research Note 59: Paddle River Dam: The Paddle River Dam is a Government project to dam the Paddle River and so create a body of water that can be used for irrigation purposes in southern Alberta. Serious debate as been an ongoing part of the approval process with appeals from Environmental and some community groups, and much disputed environmental impact debate. The government is continuing this project despite on-going court action.

Research Note 60: A brief note is appropriate about how these indicators were formed into categories. All significant data points were expressed as indicators, and as analysis progressed the size of these lists changed as new factors emerged or were combined with other factors. Further, there was movement between the categories and pressure groups as understanding grew. For example, customer satisfaction can translate into economic profit or loss, so should "customer may seek the lowest price" properly be placed in Customer concern or Economic concern? Again, community dissatisfaction with firm performance for example, can lead to the firm being punished through boycotts or other negative publicity, and so this is a real economic cost as well as a community concern, so could be under Economic Pressures instead of Community Pressures. This placement choice was complex and time-consuming, and evolved as understanding of the data evolved. The final breakdown resulted in one hundred indicators. If this data was re-coded and re-categorized yet again, I believe very similar indicators and categories would be found.

BIBLIOGRAPHY

Alderfer, C.P. and Smith, K K. 1982. Studying intergroup relations embedded in organizations. Administrative Science Quarterlv, 27, pp. 35 - 65.

Aldrich, H.E. and J. Pfeffer. 1976. Environments of organizations. Annual Review of Sociology, 2: 79 - 105.

Angus Reid. 1988 - 1992. The Reid Report. Canada: Angus Reid.

Ansoff, I. 1980. Strategic issue management. Strategic Management Journal, Vol. 1: pp 133 - 138.

Arrington, C.B., and R.N. Sawaya. 1984. Issues management and corporate strategy. California Management Review, Volume 26 (Summer): pp. 148 - 160.

Arthur D. Little, Inc. 1989. State-of-the-art environment, health and safety management programs: How do you compare? Cambridge, MA: Arthur D. Little, Inc. Center for Environmental Assurance.

Ashforth, B.E., and B.W. Gibbs. 1990. The double-edge of organizational legitimation. Organizational Science, Volume 1, Number 2: pp 177 - 194.

Barum, M.S., P.S. Dillon, and B. Ruffle. 1992. Managing chemical risks: Corporate response to SARA title lll. Chelsea, MI: Lewis Publishers.

Bartunek, J.M., and M.K. Moch. 1987, First-order, second-order, and third-order change and organization development interventions: A cognitive approach. Journal of Applied Behavioral Science, 23, pp. 483-500.

Benson, J. K. 1977. Organizations: A dialectical view. Administrative Science Quarterly, Vol. 22: pp. 1-21.

Bhambri, A. and J. Sonnenfeld. 1988. Organization structure and corporate social performance: A field study in two contrasting industries." Academy of Management Journal, Vol. 31: pp. 642 - 666.

Brewer, J. and A. Hunter. 1989. Multi-method research: A synthesis of styles. Sage Publications, Newbury Park.

Brown, L., Flaven, C. and S. Postel. 1991. The state of the world. W.W. Norton.

Buchholz, R.A. 1989. Environment and public policy. Englewood Cliffs, NJ: Prentice-Hall.

Buchholz, R.A. 1991. Corporate responsibility and the good society: From economics to ecology. Business Horizons. Vol. 34, No. 4, pp. 19-31.

Buchholz, R.A. 1993. Principles of environmental management: The greening of business. Englewood Cliffs, NJ: Prentice-Hall.

Burrell, G. and G. Morgan. 1979. Sociological paradigms and organizational analysis. London: Heinemann.

Buzzelli, D. 1994. "Toward sustainable development: Beware of environmental pit bulls." In Stead, W.E., and J.G. Stead. Management for a small planet. 2nd edition, 1996. Sage Publications: Thousand Oaks, CA.

Cairncross, F. 1991. Costing the earth: The challenge for governments, the opportunities for business. Boston, MA: Harvard Business School Press.

Carroll, A. 1979. A three dimensional conceptual model of corporate social performance. Academy of Management Review. Vol. 4, No. 4, pp. 497-505.

Carroll, A. 1991. The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. Business Horizons. Vol. 34, No. 4, pp. 39-48.

Carson, R. 1962. Silent spring. Boston: Houghton Mifflin.

Chen, C.C., and J.R. Meindl. 1991. The construction of leadership images in the popular press: The case of Donald Burr and People Express. Administrative Science Quarterly. Vol. 36: 521- 555.

Child, J. 1972. Organization structure, environment and performance: The role of strategic choice. Sociology, Vol. 6: pp. 1 - 22.

Chouchi, N. 1991. The global environment and multinational companies. Technology Review. April 1991.

Clarkson, M.B.E. 1995. A stakeholder framework for analyzing and evaluating corporate social performance. Academy of Management Review. Vol 20, No.1:92 - 117.

Clegg, S., and Dunkerly, D. 1979. Organization and control. London: Routledge and Kegan Paul.

Coddington, W. 1993. Environmental marketing. New York: McGraw-Hill.

Daft, R., and K.E. Weick. 1984. Toward a model of organizations as interpretive systems. Academy of Management Review, 9: pp. 284 - 294.

Daly, H.E. 1977. Steady state economics. San Francisco: W.H. Freeman.

Daly, H.E., and J.B. Cobb. 1989. For the common good. Boston, MA: Beacon.

Daly, H.E., and J.B. Cobb. 1994. For the common good. 2nd edition. Boston, MA: Beacon.

Daneke, G.A. 1982. The future of environmental protection: Reflections on the difference between planing and regulation. Public Administration Review. pp.5-6.

Davis, G.R. 1990. Energy for the planet earth. Scientific American. September, 1990, pp. 55-62.

Davis, K., and R.L. Blomstrom. 1966. Business and its environment. NY: McGraw-Hill.

Davis, K. 1973. The case for and against business assumption of social responsibilities. Academy of Management Journal. Vol. 16, pp. 312-322.

Dechant, K. and B. Altman. 1994. Environmental leadership: From compliance to competitive advantage. Academy of Management Executive, Vol. 8, No. 3: 7 - 18.

Denzin, N.K. 1978. The research act. New York: MacGraw-Hill.

Denzin, N.K., and Y.S. Lincoln. 1994. Entering the field of qualitative research. In Denzin, N.K., and Y.S. Lincoln. (eds.). The handbook of qualitative research. pp. 1-17. Sage Publications, Inc., Thousand Oaks.

Dillon, P.S. and K. Fischer. 1992. Environmental management in corporations: Methods and motivations. Medford, MA: Tufts Center for Environmental Management.

DiMaggio, P. 1988. Interest and agency in institutional theory. In L.G. Zucker (ed.), Institutional patterns and organizations: Culture and environment: 3 - 21. Cambridge, MA: Ballinger.

DiMaggio, P. and W. Powell. 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American Sociological Review, Vol. 48: 147 - 160.

Donaldson, T., and L.E. Preston. 1995. The stakeholder theory of the corporation: Concepts, evidence, and implications. Academy of Management Review, Vol. 20, No.1, pp 65-86.

Dowd, A.R. 1994, Sept. 19. Environmentalists are on the run. Fortune. pp. 91-96.

Drucker, P. 1989. The new realities. New York: Harper and Row.

Dutton, J.E., and J.M. Dukerich. 1991. Keeping an eye on the mirror: Image and identity in organizational adaptation. Academy of Management Journal, Vol. 34: 517 - 554.

Dutton, J.E., and R.B. Duncan. 1987. The creation of momentum for change through the process of strategic issue diagnosis. Strategic Management Journal, 8: pp. 279 - 295.

Dutton, J.E. and S. Jackson. 1988. Discerning threats and opportunities. Administrative Science Quarterly, 33: pp. 370 - 388.

Einsman, H. 1992. The environment: An entrepreneurial approach. Long Range Planning. Vol. 25.

Eisenhardt, K. 1989. Building theories from case study research. Academy of Management Review. Vol. 14, No. 4, pp. 532-550.

Elsbach, K.D., and R.I. Sutton. 1992. Acquiring organizational legitimacy through illegitimate actions: A marriage of institutional and impression management theories. Academy of Management Journal, Vol. 35: 699 - 738.

Etzioni, A. 1988. The moral dimension: Toward a new economics. New York: Free Press.

Everett, E., J.E. Mack and R. Oresick. 1993. Toward greening in the executive suite. In Schot, J. and K. Fischer (eds.). Environmental strategies for industry. Washington, DC: Island Press. pp. 63 - 78.

Ewing, R.P. 1987. Managing the new bottom line: Issues management for senior executives. Homewood, IL: Dow-Jones-Irwin.

Ferguson, A. 1989. Good to be green. Management Today. (February): 46 - 52.

Fischer, K. and J. Schot (eds.). 1993. Environmental strategies for industry. Washington, DC: Island Press.

Fombrun, C., and M. Shanley. 1990. What's in a name? Reputation building and corporate strategy. Academy of Management Journal, Vol. 33, No. 2: pp 233 - 258.

Fontana, A., and J.H. Frey. 1994. Interviewing: The art of science. In Denzin, N.K., and Y.S. Lincoln (eds.). Handbook of qualitative research. pp. 361-376. Sage Publications, Inc., Thousand Oaks.

Freeman, R. 1984. Stakeholder management: A stakeholder approach. Boston: Pitman.

Friedman, M. 1970. The social responsibility of business is to increase its profits. New York Times Magazine. September 13, 1970, pp 122-126.

Gitlin, T. 1984. The image of business on prime-time television. California Management Review, Vol. 26 (2): 64 - 73.

Gladwin, T.A. 1993. The meaning of greening: A plea for organizational theory. in Fischer and Schot (eds.) Environmental strategies for industry, Washington, DC: Island Press: pp. 37 - 61.

Glaser, B.G. 1978. Theoretical sensitivity: Advances in the methodology of grounded theory. Mill Valley, CA: Sociology Press.

Glaser, B.G. 1982. Basics of grounded theory analysis: Emergence versus forcing. Sociology Press, California.

Glaser, B.G., and A.L. Strauss. 1967. The discovery of grounded theory: Strategies for qualitative research. Aldine Publishing Company: New York.

Gore, A. 1992. Earth in the balance: Ecology and the human spirit. Boston, MA: Houghton Mifflin.

Greening, D.W., and B. Gray. 1994. Testing a model of organizational response to social and political issues. Academy of Management Journal, Vol. 37, No. 3: pp 467 - 498.

Greeno, J.L. 1994. Corporate environmental excellence and stewardship. In R.V. Kolluru, (Ed.), Environmental strategies handbook. pp.43- 64. New York: McGraw-Hill.

Hackman, J.R. 1984. The transition that hasn't happened. In J.R. Kimberly and R.E. Quinn, eds., Managing organizational transitions. Irwin: Homewood,Ill.

Hamel, G., and C. Prahalad. 1989. Strategic intent. Harvard Business Review. May/June pp. 63-76.

Hardin, G. 1968. The tragedy of the commons. in D.C. Korten and Rudi Klauss (eds.). People centered development: Toward a framework. Kumarian Press, Connecticut: pp. 84 - 96.

Hart, S. 1994. How green production might sustain the world. Journal of the Northwest Environment. 10, pp. 4 - 14.

Hart, S. 1995. A natural resource-based view of the firm. Academy of Management Review. 20(4), pp. 966-1014.

Hawken, P. 1993. The ecology of commerce: A declaration of sustainability. New York: Harper Business.

Heard, J. and Wm. Boyce. 1981. The political significance of corporate social reporting in the USA. Accounting, Organization, and Society. Vol. 6, No. 3, pp. 247-254.

Hitt, M.A. and B.B. Tyler. 1991. Strategic decision models: Integrating different perspectives. Strategic Management Journal, Vol. 12: 327 - 351.

Holmes, S.L. 1978. Adopting corporate structures for social responsiveness. California Management Review, Fall: pp. 47 - 54.

Hrebenik, L., and W. Joyce. 1985. Organizational adaptation: Strategic choice and environmental determinism. Administrative Science Quarterly, Vol. 31: pp. 336 - 349.

Hunt, C.B. and E.R. Auster. 1990. Proactive environment management: Avoiding the toxic trap. Sloan Management Review, Winter: 7 - 18.

Hutchinson, C. 1992. Corporate strategy and the environment. Long Term Planning, Vol. 25., No. 4: 9 - 21.

Jick, T. 1979. Mixing qualitative and quantitative methods: Triangulation in action. Administrative Science Quarterly, 24, pp 602-611.

Jones, T.M. 1980. Corporate social responsibility revisited, redefined. California Management Review. Spring, Vol. 22, No. 2, pp. 59-67.

Jones, J. 1983. Issues management - What are the issues? Business Quarterly, 22(3): pp. 22 - 31.

Judge, W.Q., Jr., and C.P. Zeithaml. 1992 Institutional and strategic choice: Perspectives on board involvement in the strategic decision process. Academy of Management Journal, Vol. 35: 766 - 794.

Jurkovitch, R. 1974. A core typology of organization environments. Administrative Science Quarterly, 33: 370 - 387.

Kilmann, R.H., T.J. Covin, and Associates, eds. 1988. Corporate transformations: Revitalizing organizations for a competitive world. Jossey-Bass: San Francisco.

Kirk, J. and M.L. Miller. 1986. Reliability and validity in qualitative research. Sage Publications, Beverly Hills.

Kleiner, A. 1991. What does it mean to be green. Harvard Business Review, 69 (4): 38 - 47.

Klonski, R. 1991. Foundational considerations in the corporate social responsibility debate. Business Horizons. Vol. 34, No. 4, pp. 9-18.

Kolluru, R.V. 1994. Risk assessment and management. In R.V. Kolluru (Ed.), Environmental strategies handbook. pp. 377-432. New York: McGraw-Hill.

Lincoln, Y.S., and E.G. Guba. 1985. Naturalist inquiry. Beverly Hills, CA: Sage.

Logsdon, J.M. 1985. Organizational responses to environmental issues: Oil refining companies and air pollution. Research in Corporate Social Performance and Policy, Vol. 7: pp. 47 - 71.

MacNeill, J., P. Wlnsemius, and T. Yakushiji. 1991. Beyond interdependence: The meshing of the world's economy and the earth's ecology. New York: Oxford University Press.

Mahon, J.F., and R.A. McGowan. 1991. Searching for the common good: A process oriented approach. Business Horizons. Vol. 34, No. 4, pp.79-86.

Marcus, A. 1988. Responses to externally induced innovation: The effects on organizational performance. Strategic Management Journal, Vol. 9: 387 - 402.

Marcus, A.A., and M.S. Irion. 1987. The continued growth of the corporate public affairs function. Academy of Management Executive. Vol. 1, No. 3: pp: 247 - 249.

Martin, Y. M., and Turner, B. A. 1986. Grounded theory and organizational research. Journal of Applied Behavioral Science. Vol. 22, No. 2, pp 141 - 157.

Meadows, D. D. Meadows, and J. Randers. 1972. Limits to growth. New York: Universe Books.

Meyer, A. 1982. Adapting to environmental jolts. Administrative Science Quarterly, 27: pp. 515 - 537.

Meyer, J. and B. Rowen. 1977. Institutionalized organizations: Formal structure as myth and ceremony. American Journal of Sociology, Vol. 83: 340 - 363.

Meyer, J. and W.R. Scott. 1983. Organizational environments; Ritual and rationality. Beverly Hills, Calif.: Sage Publications, Inc.

Miles, M.B., and A. M. Huberman. 1984. Qualitative data analysis: A sourcebook of new methods. Beverly Hills, California: Sage Publications.

Mitchell, J.C. 1983. Case and situation analysis. Sociological Review. Vol. 31, pp. 187-211.

Mitchell, T., and R. Beach. 1990. Toward an understanding of intuitive and automatic decision making. Organizational Behavior and Human Decision Processes. Vol. 47, pp. 1-20.

Moore, M., and P. Gergen. 1988. Turning the pain of change Into creativity and structure for the new order. In R.H. Kilmann, T.J. Covin, and Associates, eds., Corporate transformations: Revitalizing organizations for a competitive world. Jossey-Bass: San Francisco.

Morgan, G. 1988. Images of organizations. Newbury Park, CA: Sage.

Morgan, G., and L. Smircich. 1980. The case for qualitative research. Academy of Management Review. Vol. 5, No. 4, pp. 491-500.

Morse, J.M. 1986. Issues In sampling. In Chinn, P.L. (ed.) Nursing research methodology: Issues and implementation. An Aspen Publication, Maryland.

Newman, L.W. 1991. Social research methods: Qualitative and quantitative approaches. Allyn and Bacon: Boston, Mass.

Oliver, C. 1990. Determinants of interorganizational relationships: Integration and future directions. Academy of Management Review 15: pp. 241-65.

Oliver, C. 1991. Strategic response to institutional processes. Academy of Management Review, Vol. 16: 145 - 179.

Ottman, J.A. 1992. Industry's response to green consumerism. Journal of Business Strategy. Summer 1992.

Patton, M.Q. 1987. How to use qualitative methods in evaluation. Sage Publications, Beverly Hills.

Patton, M. Q. 1990. Qualitative evaluation and research methods. Second Edition. Beverly Hills, CA: Sage.

Peters, R. 1990. Prometheus barely unbound. Academy of Management Executive. Vol. 4, No. 4, pp. 70-84.

Pettigrew, A.M. 1987. Context and action in the transformation of the firm. Journal of Management Studies 24 6): 649-70.

Pettigrew, A.M. 1989. Longitudinal field research on change theory and practice. Centre for Corporate Strategy and Chant, University of Warwick, Coventry.

Perrow, C. 1984. Normal accidents. New York: Basic Books.

Pfeffer, J., and G.R. Salancik. 1978. The external control of organizations: A resource dependency perspective. New York: Harper and Row.

Porter, M.E. 1985. Competitive advantage. New York, Free Press.

Porter, M., and C. van der Linde. 1995. Green and competitive: Ending the stalemate. Harvard Business Review. 73(5), pp. 120-134.

Post, J.E. 1991. Managing as the earth mattered. Business Horizons. Vol. 34, No. 4, pp. 32-38.

Post, J.E., and B.W. Altman. 1992. Models of corporate greening: How corporate social policy and organizational learning inform leading-edge environmental management. Research in Corporate Performance and Policy, Vol. 13: pp. 3 - 29. JAI Press.

Post, J.E., and B.W. Altman. 1994. Managing the environmental change process: Barriers and opportunities. Journal of Organizational Change Management. 7(4), pp. 64-81.

Post, J.E., and M. Mellis. 1978. Corporate responsiveness and organizational learning. California Management Review, 20 (3): pp. 57 - 63.

Post, J.E., E.A. Murray, R.B. Dickie, and J.F. McMahon. 1982. The public affairs function in American corporations: Development and relations with corporate planning. Long Range Planning, 15 (2): pp. 12 - 21.

Powell, W.W. 1988. Institutional effects on organizational structure and performance. In L. Zucker (ed.), Institutional patterns and organizations: 115 - 136. Cambridge, MA: Ballinger.

Powell, W.W., and P. DiMaggio., eds. 1992. The new institutionalism in organizational analysis. Chicago: University of Chicago Press.

Roberts, R.W. 1992. Determinants of corporate social responsibility disclosure: Application of stakeholder theory. Accounting, Organizations and Society. Vol. 17, No. 6, pp. 595-612.

Schatzman L. and A. Strauss. 1973. Field research: Strategies for a natural sociology. Englewood Cliffs, N.J.: Prentice-Hall.

Schein, E.H. 1985. Organizational culture and leadership. San Francisco: Jossey-Bass.

Schlenker, B. 1980. Impression management. Monterey, CA: Brooks Cole.

Schot, J. 1991. The greening of the chemical industry: An assessment. The Netherlands: TNO Center for Technology and Policy Studies.

Schumacher, E.F. 1973. Small Is beautiful: Economics as if people mattered. New York: Harper and Row.

Scott, W.R. 1992. Organizations: Rational, natural, and open systems. Englewood Cliffs, NJ: Prentice-Hall.

Selznick, P. 1957. Leadership in administration. New York: Harper and Row.

Sethi, S.P. 1979. A conceptual framework for environmental analysis of social issues and evaluation of business response patterns. Academy of Management Review. Vol. 4, No. 1, pp. 63-74.

Shrivastava, P. 1995. The role of corporations in achieving ecological sustainability. Academy of Management Review. 20(4), pp. 936-960.

Silverstein, M. 1988. Profits of preservation. Business and Society Review. Fall, 1988.

Simmons, V.M. 1985. Reconstructing an organization's history. In Berg, D.N., and K. Smith (eds.). Exploring clinical methods for social research. pp 287-304. Beverly Hills: Sage.

Spenser, L, J. Bollwerk, and R.C. Morals. 1991. The not so peaceful world of greenpeace. Forbes. Nov. 11, 1991.

Stake, R.E. 1994. Case studies. In Denzin, N.K., and Y.S. Lincoln (eds.). Handbook of qualitative research. pp. 236-247. Sage Publications, Inc., Thousand Oaks.

Starik, M., and G. Rands. 1995. Weaving an integrated web: Multilevel and multisystem perspectives of ecologically sustainable organizations. Academy of Management Review. 20(4), pp. 908-935.

Stead, E.W., and J.G. Stead. 1992. Management for a small planet: Strategic decision-making and the environment. Newbury Park, CA: Sage Publications.

Stead, E.W., and J.G. Stead. 1996. Management for a small planet: Strategic decision-making and the environment. (2nd Ed.) Newbury Park, CA: Sage Publications.

Steiner, G.A. 1975. Business and society. New York: Random House.

Strand, R. 1983. A systems paradigm of organizational adaptations to the social environment. Academy of Management Review. Vol. 8, pp. 90-96.

Strauss, A., and J. Corbin. 1990. Basics and qualitative research: Grounded theory procedures and techniques. Sage Publications: Newbury Park.

Strauss A., and J. Corbin. 1994. Grounded theory methodology: An overview. In Denzin, N.K, and Y.S. Lincoln (eds.). Handbook of qualitative research. Sage Publications, Inc., Thousand Oaks.

Sutton, R.I. and A.L. Callahan. 1987. The stigma of bankruptcy: Management attitudes and economic performance. California Management Review, Vol. 19(3):30-39.

Thomas, J.B., and R.R. McDaniel Jr. 1990. Interpreting strategic issues: Effects of strategy and information processing structure of top management teams. Academy of Management Journal, 33: pp. 286 - 306.

Throop, G., M. Starik, and G. Rands. 1993. Sustainable strategy in a greening world: Integrating the natural environment into strategic management. Advances in Strategic Management. 9, pp. 63-92.

Tichy, N., and D. Ulrich. 1984. Revitalizing organizations: The leadership role. In J.R. Kimberly and R.E. Quinn, eds., Managing organizational transitions. Irwin: Homewood, Ill.

Turner, B.A. 1983. The use of grounded theory for the qualitative analysis of organizational behavior. Journal of Management Studies. Vol. 20, No. 3, pp. 333 - 348.

Tushman, M.L., W.H. Newman, and E. Romanelli. 1988. Convergence and upheaval: Managing the unsteady pace of organizational evolution. In K.S. Cameron, R.E. Sutton, and D.A. Whetton, eds., Readings in organizational decline: Framework, research, and prescription. Ballinger: Cambridge, MA.

Tushman, M.L., and E. Romanelli. 1985. Organizational evolution: A metaphorphosis model of convergence and reorientation. Research in Organizational Behavior, Vol. 7: pp: 171 - 222.

Ullmann, A.A. 1985. Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of U.S. firms. Academy of Management Review. Vol. 10, No. 3, pp. 540-557.

U.S. Bureau of National Affairs. 1993, January 6. Penalties largest on record. Air and Water Pollution Control. p.2.

Votaw, D., and S.P. Sethi. 1973. The corporate dilemma: Traditional values versus contemporary social problems. Englewood Cliffs, NJ: Prentice-Hall.

Wade, B. 1992. Losses mount as owners seek allies in battle to clean up. Corporate Cashflow. 13(2), pp. 20-22.

Walters, K.D. 1977. Corporate social responsibility and political ideology. California Management Review. Spring, Vol. 19, No. 3, pp. 40-51.

Wartick, S.I., and P.I. Cochran. 1985. The evolution of the corporate social performance model. Academy of Management review, 10 (4): pp. 758 - 769.

Wartick, S.L., and R.E. Rude. 1986. Issues management: Corporate fad or corporate function? California Management Review. Volume 29, No. 1, pp. 124 - 140.

Watts, R., and J. Zimmerman. 1978. Towards a positive theory of the determinants of accounting standards. Accounting Review. January, pp 112-134.

White, M. 1995. The performance of environmental mutual funds in the United States and Germany: Is there economic hope for green investors? In D. Collins and M. Starik (Eds.), Research in corporate social performance and policy, supplement 1. pp. 323-344. Greenwich, CT: JAI.

Williams, H.E., J. Medhurst, and K. Drew. 1993. Corporate strategy for a sustainable future. In Fischer and Schot (eds.). Environmental strategies for industry. Washington, DC: Island Press. pp. 117 - 146.

World Commission on Environment and Development (WCED). 1987. Our common future. New York: Oxford University Press.

Wood, B. 1984. E.F. Schumacher: His life and thought. New York: Harper & Row.

Wood, D. 1991. Toward improving corporate social performance. Business Horizons. Vol. 34, No. 4, pp. 66-73.

Wood, D. 1991b. Corporate social performance revisited. Academy of Management Review. Vol. 16, No. 4, pp. 691-718.

Yin, R.K. 1981. The case study crisis - some answers. Administrative Science Quarterly. Vol. 26, pp 58-65.

Yin, R.K. 1984. Case study research: Design and methods. Sage Publications, Beverly Hills.

Yin, R., E. Bingham, and K.A. Heald. 1976. The difference that quality makes: The case of literature reviews. Sociological Methods and Research. Vol. 5, No. 2, pp 139-156.

Zald, M.N. 1978. On the social control of industries. Social Forces, 57: pp. 79 - 102.

Zenisek, T.J. 1979. Corporate social responsibility: A concpetualization based on organizational literature. Academy of Management Review. Vol. 4, No. 2, pp. 359 - 368.

Zetlin, M. 1990. The greening of corporate America. Management Review, 79 (6): 10 - 17.

Zucker, L.G. 1987. Institutional theories of organizations. Annual Review of Sociology 13: 443- 64.

APPENDIX A

SELECTED INTERVIEW QUOTATIONS - FIRM A

A - 1. Interview 43 (5: 21 - 24): I think that would sum it up (firm does more than it needs to). I'm really glad to see it, but they have to do it in a manner that makes financial sense too. We can't do everything at once, but as long as there's continual improvement...

A - 2. Interview 31 (9: 29): Money. I mean that is why we are here.

A - 3. Interview 42 (7: 48 - 54): I guess it's part of trying to understand your risks in management. Looking at your finances and to a certain extent., the amount of money that goes back into the plant site, whether it would be environment, health or whatever, the manpower on this plant site can only manage a certain amount of money in a certain amount of projects.

A - 4. INTERVIEW 14 (11:20 - 11: 24): The economy has an influence. Certainly. But in my estimation, which is why we decided to be proactive, the longer you wait the more costly it's going to become. And yes, we have to be driven by that part of the jigsaw puzzle. ... It's a living thing. The jigsaw is my favorite analogy.

A - 5. INTERVIEW 14 (12: 35 - 12: 43): If I was to walk in tomorrow (to head office) and say that I need fifty million dollars to really put this particular product on line, but it's only making a million dollars a year profit. Somebody would say to me, "hey we'd like you to go back and revise your ideas a bit. What you're going to do with that particular unit facility etc etc". I would understand that. Sure, sure. But that's not the challenge. The challenge for all of us is to look at particular situations and say ok we have a problem here, ohh, it's not the most profitable thing. Is there another way to do it.

A - 6. INTERVIEW 8 (16: 9 - 11): Management has said well OK if we're going to be here another forty years we'd better spread out this investment and we'd better do it wisely. And, that's really where the impact comes in on the business. ... How do we find smart ways to do it?

A - 7. INTERVIEW 14 (12: 43 - 13: 8): We have a couple of ideas at the present moment, to recover two products that presently we either burn or destroy catalytically. And uh it'll all cost, one of them will be a couple of million, and the other one about six million dollars. I think we'll get the money for that. OK? I think we can build a very reasonable case for spending that money. If we can get this to fruition, and I think we can, it will do two things. Ok. A, it will bring product to the market which hopefully will improve our bottom line and our cost of producing that particular material, but it will also environmentally be an improvement for the site.

A - 8. INTERVIEW 14 (13: 8 - 13: 20): So I hear the the economics, but I also think there is a different attitude in terms of economic spending. We just spent six million dollars again in recovering a material from a by-product, but the plant is up and running, but one of the key things was, in the justification for that expenditure, was not only that we could utilize the product within the family in N. America, but also it took about fifteen thousand tons of chemical out of the material we're putting down our deep well. And that was important, that was stressed quite clearly, that this would be removing fifteen thousand tons of a product that we were punching down as a soluble product down the deep well. And it was important. That helped that project because the economics for that project weren't that wonderful, ok in terms of return on capital and payback, but it was a step in the right direction in terms of improving our environmental performance.

A - 9. Interview 43 (1: 26 - 33): ISO 9000 is a standard that has come out of Europe. As the coordinator, I make sure that we do our internal audits. The coordination that it takes for a group of people on site that are audits, so I make sure that all the audits are done and the findings completed. When it comes to writing the manuals, I take care of the ones in my area, but I also make sure everyone else on the site gets theirs done. I'm supposed to be the company authority on it.

A - 10. INTERVIEW 24 (9: 33 - 41): Well, most of them (behaviors) have payouts in one way or another. A long payout sometimes. But some of them don't. We have this constant pressure from government to improve and we also look down the road, well you see we trade about 70% of our goods trade internationally, and this in fact is what I was talking to our Mexican colleagues about ... I was telling them that unless they can, through NAFTA, trade into the States, unless you have the safety, the environmental compliance that is equivalent, or darn close to equivalent to the US, is that you're going to be competing against US producers that are going to scream and yell, and say that you're polluting the environment and they'll say that is unfair competition.

A - 11. Interview 44 (2: 9 - 18): A lot of it (hints about future trends) relates back to the States and then through Ontario, BC, and then here. I'm not sure if it goes in that order, but it certainly comes through them. ... I'm sure a lot of the controls on car emissions wouldn't be there if it wasn't for what was happening in the States.

A - 12. INTERVIEW 14 (8: 17 - 24): Union Carbide is probably the best example of all. I mean that company was never the same after Bhophal, in fact it doesn't look the same today. Divested, changed names. That company has gone through fantastic change, and when the average CEO, when you get to CEO ... looks at that, and he has to stand back and say "Wow look at what's happened to that company, well I'm making sure that it is not going to happen to me." And then that starts.

A - 13. INTERVIEW 8 (2: 21 -31): I think you might take a step back, I can't even remember when it actually occurred, but Bhophal was a real watershed for the chemical industry. And there was one in England which may not be known over here, at

Flexborough. And these were major catastrophes. Flexborough killed twenty-seven people I believe, and they were lucky it happened on a Saturday afternoon. Bhophal we know about the incident that happened there, and in a sense that was a wake up call for the worldwide Chemical Industry. Because the question was asked "Can that happen here?", and the honest answer was "Yes". Not the particulars of it, but a catastrophe of that sort of magnitude could happen. I think that the chemical industry began to realize that public pressure could start shutting facilities down on the one level, and if you look on the more financial scale of it, I don't know if the Union Carbide shares have ever recovered from that.

A - 14. INTERVIEW 14 (16:36 - 17:6): Well I think the case in point is sitting on our doorstep at the present moment. And that's climatic change. Ok. The public perception is that green house gases per se are influencing the climate. If you go to the scientific community I could find as many for it as against it. And, you know here we are, I know how much CO2 I produce every day. I know how much we produced in 1990, I know that it's increased since then, etc etc. And what I'm looking, my concern right now is am I going to have to improve in that area, and is it real number one, is it really beneficial to Canada as a whole given that we are about two percent of the total in the world. And we know damn well that the Chinese are going to burn sulfurous coal you know, because a rising standard of living is all tied to energy, and they have coal and nothing else, not a tree in sight. Are we doing the right thing.

A - 15. Interview 42 (9: 4 - 10): (foreign jurisdictions a concern?)
Yes, because C1 is linked in the US, we can book and see what the EPA is doing. So, there's a whole range of avenues that the corporation can use to turn around and say that by this date we want to do such and such. I was kind of intrigued by the fact that insurance companies were seriously looking at the Berlin conference and their part in it.

A - 16. Interview 42 (9: 14 - 16): I'm sure bankers would be there too (Berlin). There's a lot of things we have to do out here to meet our insurance contracts.

A - 17. INTERVIEW 8 (17: 11 - 14): They're a concern of us in that we have to get insurance and they come and do their own inspections and everything else at the plant level and we had done just last week. ... We have an insurance manager in Corporate who looks after that.

A - 18. INTERVIEW 8 (17: 18 - 20): They have certain standards and they make recommendations for improvements and the rest of it ... so it's another audit course if you like, another check in the system.

A - 19. INTERVIEW 14 (10: 27 - 33): Oh, I know for a fact, a gentleman that used to work for Nova in the Environmental field is now with the Toronto Dominion. That is certainly the case. The first thing they are going to look at now are environmental concerns and liabilities. They recognize and have seen the Love Canals, and Mississauga incident and all of those are extremely injurious to the lender, even through just being associated with it, and also it costs a lot of money to fix. I don't want to own this facility. So that's there.

A - 20. INTERVIEW 8 (23: 36 - 39): There is an ex-colleague of ours who used to work for Shell, and I knew him through the CCPA, he's now a Vice-President for CIBC on Environmental Affairs. Not only does he look after the environmental impact of their (own) building but every major loan has to cross his desk.

A - 21. INTERVIEW 24 (14: 37-38): We have no pressure (from bankers) because currently we have no debt and about two million dollars in cash assets in the bank.

A - 22. Interview 42 (6: 41 - 45): You may even isolate other industries from adopting those methods. I think we're major players in having other industries in the area adopt CARE, where they may not have done it before.

A - 23. Interview 43 (9: 48 - 50): As soon as some company comes up with an idea that looks good in the press, then the other companies get on it.

A - 24. Interview 42 (5: 17 - 29): I know with my association with others and the fact that a lot of what we do is certainly influenced by Responsible Care and we are the only Responsible Care member there at the table. We have to sometimes pull back and make sure we're not pushing C1's RC. Yet, we've been able to get other companies to adopt Care principles, even though they don't have to. They formally adopted, in 1990, a Care program and we publish a quarterly newsletter to the community, we're having Care Fairs this summer. And I can say that there are people around those tables that don't understand and think it's another one of those things that's out there that's going to make things difficult for them.

A - 25. INTERVIEW 14 (6: 20 - 6: 30): Knowledge is certainly a driver. I think the CFC case is a prime example. We're just going to spend five and a half million dollars next year taking out our Industrial refrigeration system based on CFCs. We'll replace it. Um I have to admit driven by the Montreal Protocol, but the fundamental change there was when Dupont agreed you know yeah there might be a link between CFC's and this large hole in the Antarctic when these balloons charting the size of the ozone layer and any gaps. The day Dupont came out and said Hey we're getting out of this business, the whole industry just said, are you sure about that, fine right, we're going to, and we have shut down all of their CFCs. And produced an alternative, us Dupont and others, mind you I think they still have CFCs in India.

A - 26. INTERVIEW 24 (1: 13 - 18): So at that time (1978) if you really looked at the situation, what you did see, was that if you were going to trade, and most of our materials are for export, if you're going to trade in the US you'd better have pretty reasonable environmental performance or they're going to come back and nail you for unfair practices. You've seen the same thing happening in the lumber industry and like that where they view it as government subsidies, or you're doing practices that would be considered illegal in the US, things like that.

A - 27. INTERVIEW 8 (14: 31 - 15: 5): I think that countries with next to no regulations are disappearing pretty fast. ...So our firm is a multinational family that operates in Mexico, the USA and Canada, and a lot of the major companies particularly in the US that are in that situation, most of them are in that situation, the Dupont's. They've all said that they intend to operate as a North American continent, basically, and the Mexican facilities will be brought up to the same standard as the US and Canada ones. We will bring them up to our standard. And I think that actually Union Carbide, the Bhophal incident, it goes back to that, because there was the suspicion or perception, put it that way, that it was in India and the facilities weren't as well maintained, and cheap, and they would never do that in the US. Companies have to operate these days globally. The world is a small place, shrinking in that sense.

A - 28. INTERVIEW 8 (23: 7 - 14): Yeah, environmental liability is an issue. Yeah. I always say that there are two parts. Our environmental performance has got to improve and our environmental liability has got to decrease. What people, I think the feeling coming back from the community is, not quite in these words, are well, what legacy are you going to leave us? What liability is going on here in the future? Is there a Love Canal? That's the sort of question that is starting to come up now. It's interesting in the sense, before you shut down, before we close the plant site, we have to decommission the plant, we have to file a plan. We can't walk away from this site and leave it. And that's a liability for the company.

A - 28b. INTERVIEW 14 (5:13 - 5: 28): No one likes to see the company for which they are responsible have a bad name, ok. And secondly our own employees want to be able to say we work for a responsible company as well. And I think it starts with, activation or initiation you know really begins in the public forum, and it's a combination of you know, if you like, Greenpeace or people like Rob McIntosh at the Pembina Institute. If you really want to get at the .., the environmentalists, and they're saying you know, as we see it, the total ecological system is being imbalanced by action of the populace, and it's very difficult for them, they are as astute as we are, Rob McIntosh is a smart cookie ... I But they begin to lobby, and do a very effective job of lobbying, again I'm not convinced that they are really giving the total picture, ok, but if you're going to make change perhaps one of the requirements is that you present something that is slightly slanted. That's fine, I understand that. Industry does it the other way, heh heh. That is what debate and democracy is all about.

A - 29. Interview 43 (6: 31 - 37): When you start signing your name on things like sample shipments that we send out of our products and we have to package them a certain way for the transportation of dangerous goods, you stop and think when you're signing your name on a piece of paper that says I've done everything possible to ship this safely. There's the possibility now that it can come right back to the person.

A - 30. INTERVIEW 27 (17: 47 - 54): The responsibility is on everyone now. Years ago, a guy would come into a plant, do his job, and it was the managers worry. He just wanted to do his job, get his pay cheque and get out of there. Now legislation makes employees also responsible. It's becoming more and more responsibility on the individual than it used to be. The responsibility used to lie primarily on the plant manager for health and safety. It's still the prime responsibility...

A - 31. Interview 43 (6: 25 - 31): Our plant in Sarnia with that whole fish story and the thing that really made everyone sit up and take notice is that they are not going after the corporation, they're going after an individual which makes you take notice of a lot of different things. We've having a lawyer coming in and talking to us about due diligence.

A - 32. INTERVIEW 27 (18: 3 - 8): ... but now there's much more responsibility on every individual in the plant through legislation and OHNS environmental legislation in some provinces have been fining individuals. We had a situation in Ontario where our environmental coordinator was individually fined for $5,000 for an incident that happened. He appealed and he won, but you're going to see more and more of it.

A - 33. INTERVIEW 24 (2: 16 - 27): I haven't seen a pond yet that doesn't leak given time. In this case it leaked and contaminated the sub-surface soil and so at that stage of the game we had to do two things: one was to stop that from happening, to prevent it, and the other was clean-up. So the basic thing there was to get rid of all our ponds, and cap them properly ... and the next step was to put in an effluent treatment plant with all above ground storage and all these other good things that would allow us to be able to continue operation. So these facilities were started up in the capping, and that began in 1984, and the whole thing was completed in 1985, and obviously we had to do this as part of operating, and it was fairly lengthy process to do all that.

A - 34. INTERVIEW 14 (6: 11 - 16): And so, certainly for those of us here at this site, we've had an incident that we had to contend with back in 1983 when we discovered, as many have subsequently discovered, that our ponds were leaking. But they were put in to the Engineering standard of the day. There is nothing at this site that wasn't put in according to the regulations when it was done. The problem is that knowledge has changed significantly. It doubled every ten years, ok.

A - 35. INTERVIEW 27 (18: 18 - 24): When I see reports from the Board of Directors, now you'll see some of the priority items on every meeting, they'll want to know about safety in every plant, environmental issues of any kind. They want to be made aware of any problems, any spills. You never would have seen that years ago. I think they've become more conscious of their responsibility and their role.

A - 36. INTERVIEW 8 (16: 15 - 20): Well obviously number one, no not number one but one of the major, you've got to be in compliance with the regulations. Number one, that's a given. If you're not there you're in trouble. So in the short term the regulators have got to be number one. The first question is are you in compliance, are your compliance reports in? So, that's how seriously it's taken. Environmental matters are reported directly up to the Board. They (the Board) know exactly everything that I've reported to the government.

A - 37. INTERVIEW 14 (16: 19 - 25): But of course that particular situation has again been initiated by two of the bad eggs. Bata knew they had a problem long before they hit the court. They were in Belleville, the executives went to jail. And unfortunately you're going to have individual companies who don't have the culture and the vision to do better. To improve their operations. And those cases result in measures that I think outweigh the good of it all actually. It's just, the pendulum swings from here over to here instead of framing the middle ground and insuring improvement.

A - 38. INTERVIEW 24 (14: 38 - 40): We want to be in business in the long term and you have to have the public on your side. I don't know if it helps, the chemical companies are still the bad boys ...

A - 39. INTERVIEW 14 (10: 34 - 41): So its, ah, I think again that's the publics and the media and you know the concern, it's all driven from that aspect. But our push is just to be better. It's .. here's the trite phrase, to be the responsible corporate citizen. As you know with the North Saskatchewan River study, we initiated that here, the last two people we had to get on board were the city and the Capital Regions. But I think that someone was sufficiently astute in both of those organizations to say well, better to be on board and to know what's coming rather than being off-board and getting it as a surprise.

A - 40. INTERVIEW 8 (5: 24 - 34): Legislation seems to follow it (public opinion). I don't know about public opinion. When it comes down to it, I think, is that basically people have some fears over it, and ... After the Care days we drew up a list of the twenty most popular questions, and the sort of thing, the questions you got was "Do you use cancer causing agents in the plant?" and yes we do, this is what we do and this is how we handle them, this is how we monitor the employees exposure, this is the health we do, and "Do you transport the materials through my neighborhood?" Well, we go on the highways, they could go through your neighborhood. "Well, what would you do if you had a truck accident?" Well, we have this for emergency response , we would do this and all the rest of it. Once they know they're quite comfortable. They are not saying "you should not use cancer causing agents" they just want to know if you're willing to tell people and what precautions you take. ... We're interested in what the local people say, what their concerns are.

A - 41. INTERVIEW 14 (5: 35 - 6: 2): ...and I think the publics, whoever they are and from whatever source, influence government. And they also influence Industry as well. I mean, we're not deaf. And I think Industry also recognizes that we have not been in the past particularly concerned with environmental impact. I think that has changed very significantly, I mean you can't go to a meeting now of facility managers, where talk about the work environment, or OSHA, or EPA, or regulation doesn't occur. So it starts in the public forum, there is no doubt about that in my mind. There is an awareness created certainly in the government, and also in the Industrial field...

A - 42. Interview 44 (4: 6 - 8): They never get there (complaints sent to Dallas). They get handled here without going any further. Unless the complaint went directly to Dallas, it would get handled right here.

A - 43. Interview 44 (4: 14 - 16): For them (Dallas) to know about it, it would have to be something major and I don't think we've had anything major for a long time.

A - 44. Interview 42 (12: 29 - 38): We've collected all this data, but what are the health impacts to the community? So, we're working with a toxicologist and we're getting him to tell us what this means to the community. His comment was: "Usually I'm presented with data and people ask how can be sure that this is not harmful?" We're trying to work with him at the same time he's researching the various chemicals that we're working with so that he can say that such and such concentrations are not likely to be a problem unless you're, say, a senior.

A - 45. INTERVIEW 8 (11: 19 - 31): They expect us to have that these days as well. The regulators want us to do that. They don't want to have to get involved. If we look at the legislation, what it actually says, lets use licensing as an example, OK, what it says is that we are supposed to make an application, you know we need a licence to do this and this, put it into them, but its open to public review. If the local population says they don't agree of this, or we don't want this, or whatever, they will hold a public hearing. Which is time, money, quasi-judicial, the whole lot. That's what the process is, it's laid out there. What they're saying is, and what they're encouraging people to do is, go find out ahead of time, tell us what those concerns are, address them in your application, then we've got all the information. Because the first thing that the senior bureaucrats say is "well is this going to be able to swing with the public?" What evidence have you got that people are going to be satisfied with this. Are you going to keep them off my back? Is the Minister of Environment going to have a problem on his desk or not, basically.

A - 46. Interview 42 (13: 48 - 50): (Threats to continuing operation?) It might be the community in response to something serious happening. It's like Bhophal really changed the thinking of the chemical industry.

A - 47. INTERVIEW 27 (13: 6 -7): I know the type (activists) ... They are just never satisfied. You can never go far enough.

A - 48. INTERVIEW 14 (5: 13 - 28): No one likes to see the company for which they are responsible have a bad name, ok. And secondly our own employees want to be able to say we work for a responsible company as well. And I think it starts with, activation or initiation you know really begins in the public forum, and it's a combination of you know, if you like, Greenpeace or people like McIntosh at the Pembina Institute. If you really want to get at the environmentalists, and they're saying you know, as we see it, the total ecological system is being imbalanced by action of the populace, and it's very difficult for them, they are as astute as we are. Rob McIntosh is a smart cookie ... But they begin to lobby, and do a very effective job of lobbying, again I'm not convinced that they are really giving the total picture, ok, but you're going to make change perhaps one of the requirements is that you present something that is slightly slanted. That's fine, I understand that. Industry does it the other way, heh heh. That is what debate and democracy is all about.

A - 49. INTERVIEW 24 (20: 15 - 18): Mind you Greenpeace is losing a lot of funds and a lot of people. The whole environmental movement is in financial trouble and I can only figure that the reason is that as people have decided as a group that it ain't as dangerous as they've been telling us. They've scared us once too often, and the sky isn't falling.

A - 50. INTERVIEW 8 (9: 1 - 18): I remember talking with Rob McIntosh. I sat on the original CASA board, advisory board, and, as a CCPA rep for the local area, and I just remember talking with Rob, I brought him out to the plant site, and I said how do we get to know you guys, and how do you get to know us in a non-confrontational way. ... And he turned around to me after a year, and he said 'you know it's quite interesting, a year ago, if someone had come and told me, had asked me a question about the Chemical manufacturers in Alberta, he said, I would have blasted them, but he said, when I get asked I think of you, and you've sat here for a year, and the views you've done, and its sort of realize that I know you, and, he said, I would think twice because I know what you're trying to do. I don't agree with all of it, but I know that you're going in the right direction." So all you can do is quietly try to get to know these guys, It's almost on a personal level, but they hear what your commitments are, they hear what you're saying, and you're judged by your actions, you've got a track record. And I've done the same with Brian. He stands up a bit more with his political style of debate, but again, that's fine, its like management relationships, he's got his role to play. Then you get away from the public arena, and you solve the problem. You know, credibility on both sides. To get to the issue and solve it. And basically you work through things like the CCPA SIA and through the associations.

A - 51. INTERVIEW 24 (14: 38 - 40): We want to be in business in the long term and you have to have the public on your side. I don't know if it helps, the chemical companies are still the bad boys ...

A - 52. INTERVIEW 8 (3: 22 - 30): If you look at all the literature, where do most people get their environmental news from? 60 Minutes. That's not exactly the most unbiased program around. You look at what the Journal and the Sun write. I usually say that a day that we don't make the Journal is a good day for us, because basically I've never seen an article on any chemical site or industry that doesn't have something that is going to stick it to you. Its never a hundred percent good. So there is still that fear there, and this is the information that people are getting, and what we try to do is I guess is try to balance the equation and say "these are the facts" and "make your own mind up. Are you prepared to let us live in your community and work here."

A - 53. INTERVIEW 27 (12: 1 -14): ... we try to talk to the press. Romeo and I were down there (train derailment) and we tried to talk to the press and spent hours trying to explain to them what our product's all about so that they would have an understanding about it and show them that it's relatively safe. Yes, under certain conditions ... it might blow up. But here you are when it's exposed to the atmosphere and it's 40 below, there is absolutely no danger. But, again, those are the perceptions that people have of our industry that I think are very difficult for the people in the industry to deal with. So, we've been trying to, through different programs through the CCPA. You've probably seen some of the ads they've been running about Responsible Care.

A - 54. INTERVIEW 14 (5: 29 - 5: 35): I think the media to some degree is looking for that type of concern, in order that they can keep their circulation up. ... If you look at the number of magazines that are out there now like Equinox, like Discovery, like.. the list goes on and on, they obviously have an audience or they wouldn't produce the damn things and they wouldn't sell them either. They wouldn't make money. So there is a much greater audience there out in the public

A - 55. INTERVIEW 14 (4: 15 - 17): Despite that, clearly its a political thing today in terms of getting re-elected and voted in. The media plays up the big incidents without really projecting with accuracy where emissions are coming from.

A - 56. Interview 32 (4: 35 - 38): Well, I think a few years back a chemical company used to have a bad record for spills and all that, and contaminating the environment and also for smells which you get across the river. Now they are very concerned as to how the general public thinks of them and they spend a lot of money in creating that image and also in correcting the way they do their process.

A - 57. INTERVIEW 14 (11: 31- 12:1): I'm going back to 1980, I'll give you this prime example. When we first looked at this groundwater problem with the leaking pond, the initial proposal was in 1983 when we first became aware of the problem. As we began to work on the problem on it the initial scope of the expenditure was something like I think it was four million dollars, and as we continued to look at the problem and examine it, it became clear that what we really had to do was to get out of ponds period. And that meant building the effluent treatment plant that we have here now where we have a bell filter and ph adjustment and clarifiers etc etc. The total rose to ten million dollars, yeah I think ten million, and that time the company had a long term debt probably in the region of 80 million bucks, ok, and that was in the recession period of 82 83 84.

A - 58. Interview 31 (5: 23 - 24): Because you want people to buy your products. You don't want to be perceived to be a seal killer, if you think about fur coats or whatever.

A - 59. Interview 43 (3: 40 - 43): He said in Europe the consumers are becoming much more well informed and they will not buy from companies who are not into recycling or who are stripping the environment.

A - 60. Interview 43 (3: 34 - 40): Well, I don't have any proof of this, but I was just at a training course for ISO 9000 and the fellow that was instructing said that the consumer has never been so well informed as they are today. He gave the example of Exxon in the States and that since Valdez, the consumers in the States really hurt Exxon because they would not buy from them. They've actually noticed it on their bottom line.

A - 61. INTERVIEW 27 (10: 27 - 31): Sure. You won't survive (without good environmental practice). I think a lot of companies that didn't do it went down. There were a lot of companies that went under in the 80's.

A - 62. Interview 43 (7: 40 - 48): We've done the 96%, we're just working on the last 4%. With my involvement with ISO 9000, the next one is ISO 14000 which is the environmental one. When that standard comes out, what will happen to Brazil, Mexico and China? Will the consumer be able to put enough pressure on these companies to meet these standards? If they have to meet them, then the global economy is going to be a completely different picture. After I came back from China, I seriously hope something will come of that.

A - 63. Interview 42 (8: 44 - 45): (Future regulations a worry?) As best we can anticipate yes, we take those types of things into account.

A - 64. Interview 31 (6: 1- 2, 6): Yes it enables your plant to keep operating, because if you don't meet the environmental standards you are are closed down, right? ... So you have to be concerned about environmental regulations.

A - 65. Interview 42 (7: 31 - 37): Maybe it's also too that the whole area changes so much. If you look at the area of environmental health and safety, the window that we operate in changes so much. We're not fixed in time so what we're doing today may not be enough even in five years from now. We may find something else out.

A - 66. INTERVIEW 27 (6: 25 - 34): Legislation has tightened and there's been more of it than there was back in the 50's and 60's and that's probably forced some things to happen. But, I think what most companies have recognized back in the 80's is that they didn't particularly like the idea of government telling them what to do or interfering in their business, so most of them decided: "Hey, we'd better keep ahead of legislation and be proactive in this area because if we don't they are going to come in and legislate."

A - 67. INTERVIEW 14 (11: 20 - 24): The economy has an influence. Certainly. But in my estimation, which is why we decided to be proactive, the longer you wait the more costly it's going to become. And yes, we may have to be driven by that part of the jigsaw puzzle ... it's a living thing. The jigsaw is my favorite analogy.

A - 68. Interview 44 (7: 5 - 8): Are you really dealing with the last 4% or the last 4% that you know of today. It all changes so fast. A lot of the things that were never thought to be carcinogenic turned out to be.

A - 69. Interview 32 (9: 34 - 36): I guess it was at the beginning (government red-tape causing headaches?), but now after the way things are being done now I don't think there's that much trouble with the government. Not that I've heard lately, because before that you would read about it in the paper or you heard it by the grape-vine when something went wrong. I haven't heard anything for a few years.

A - 70. INTERVIEW 14 (15: 41 - 16: 6): What we try to do is not say "No no no", but "Let's look at the situation. What makes sense?" What do we think we can accomplish? What would lend clarity to what you're doing. We tend to worry more about the interpretation of how things are written, lets add clarity to what this really means. What does this really mean? And what do you really want? And I think they listen. But in terms of telling them what to do per se, no.

A - 71. INTERVIEW 27 (7: 8 - 14): What I meant by the government legislature driving the timing on things is that we might be looking at certain things and say maybe by year 2000, we could do something. Government might come in and say: we want you to get rid of these deep-wells by 1996. Then we say: wait a minute ... how could we possibly do that? Where would be find the money?

A - 72. INTERVIEW 8 (16: 15 - 20): Well obviously number one, no not number one but one of the major, you've got to be in compliance with the regulations. Number one, that's a given. If you're not there you're in trouble. So in the short term the regulators have got to be number one. The first question is are you in compliance, are your compliance reports in? So, that's how seriously it's taken. Environmental matters are reported directly up to the Board. They know exactly everything that I've reported to the government.

A - 73. INTERVIEW 8 (10: 29-37): ... One of the things we did as a company, back when I came into this job in '88, '87, and the first thing I was asked to do was to take a long term look to the end of the decade where we had to be, and come up with a strategy for getting there. We're about half way through that now, and the biggest part of that was going to the regulators and saying 'look, this is what we're doing, this is what we want to be, can you agree with those goals?" Getting their buy in, and saying "these are the steps we're going to take". Its not going to happen over night, but these are our priorities, do they agree with yours, and we actually ended up with mutual goals, and we've progressed through our licence terms and we're making that progress.

A - 74. INTERVIEW 24 (3: 24 - 34): And here in Edmonton we looked at, we were ahead of this game by quite a bit, we were probably five to ten years ahead in terms of looking down the road and still trying to react for the future but my concern was always that if we didn't do that and just followed the law that at some point in time we would be faced with some humungous bill to bring everything up to compliance. And the corporation would say, well, we're not going to spend three hundred million dollars on this site, and then shut it down. And so we established a program here whereby we would do yearly improvements, and, we sort of said we will spend an average of at least a third of our annual budget towards environmental projects. We target a thing and say we'll do this or we'll do that. And we reviewed these plans with Alberta Environment and got their OK that this was the way to go, and basically what we said, we wanted to be in continuous improvement mode. To the environment and health and safety matters.

A - 75. Interview 8 (20: 26 - 37): Environmental protection ... basically says, that's the philosophy, he says we're looking at protecting the environment and if people are prepared to take that view then we're support you. If you try to fight us and say that's the regulation I'm not going to do anything extra then they'll punish you. It's done on track record, there is no question of that in my mind. Basically the regulations are written, and if they want to screw you they can screw you. There's nothing you can do about it. Heh heh. My job at the end of the day is to give them no reason to screw us.

A - 76. INTERVIEW 24 (1: 10 -13): Well, in the early days I think it (environmental behavior) had more to do with individual employees that were in a position to influence it than government regulations or corporate regulations. Going back fifteen years ago or more. In fact it was about that time, in 1978, when we really started to get into environmental improvements.

A - 77. Interview 33 (7: 33 - 35): On safety, I think they (management and Union) are both well together they both want to keep the site safe, to what extreme each one will go to, the company might say we will go up to this point and the Union might say we want you to go further, but overall I think they are close to the same.

A - 78. INTERVIEW 27 (19: 2 - 15): They hold a major conference every year out of this fund. The union does it. ... The union is taking this seriously. They know that it's in the best interest of preserving themselves that they better get involved in environmental and health and safety and work with companies on it in a cooperative role.

A - 79. Interview 32 (9: 23 - 25): We have bulletin boards all over the place with all these notices and policies. People watch over each other too, if someone is screwing up, or not doing something safely or spilling something, we will correct them. We won't turn them in, but we will correct them.

A - 80. INTERVIEW 8 (23: 14 - 20): And in fact the accounting companies are now saying well, what environmental liabilities have you got? Then, we have an external, Peat Marwick are our external auditors, and they come in, I mean, golly, it seems like every bloody other week, they come in for their annual audit, and they will spend, I don't know what percentage of their time, but I would spend a couple of days with them on environmental liability.

A - 81. Interview 31 (2: 5 - 7): If you think of it in terms of as technology improves you are able to detect much more closely, you are able to monitor much better, the environmental impact of a plant like this on the environment. Technology has changed that certainly.

A - 82. Interview 33 (4: 24 - 25): (Questions from the community?) Some friends do. You talk about your job and what happens. If they hear something on the news they know you work here.

A - 83. Interview 43 (7: 14 - 18): (Chats with neighbors?) Yes, I've had discussions with some friends. Some of them are quite conscious about the environment and maybe that sort of slants my thinking because they are some of our closest friends and they were involved in some of the original recycling programs in Edmonton.

A - 84. Interview 44 (2: 9 - 18): A lot of it (hints about future trends) relates back to the States and then through Ontario, BC, and then here. I'm not sure if it goes in that order, but it certainly comes through them. ... I'm sure a lot of the controls on car emissions wouldn't be there if it wasn't for what was happening in the States.

A - 85. Interview 31 (4: 49) (Main reason for change?) Pressure within the corporation.

A - 86. Interview 31 (5: 3 - 4): Executive pressure. You can't discount influence of the Unions. The union wants safe working conditions for their members. Well, everybody wants safe working conditions.

A - 87. INTERVIEW 14 (8: 17 - 24): Union Carbide is probably the best example of all. I mean that company was never the same after Bhophal, in fact it doesn't look the same today. Divested, changed names. That company has gone through fantastic change, and when the average CEO, when you get to CEO ... looks at that, and he has to stand back and say "Wow look at what's happened to that company, well I'm making sure that it is not going to happen to me." And then that starts.

A - 88. Interview 32 (4: 4 - 7): No, this company spends on the environment. One year I know they spent thirteen million. The yards and the units are all clean, by that I mean they aren't full of dust and dirt and other things. Other safety programs are out there. In my group I am Safety Coordinator within my group and we have meetings every two weeks, we bring up safety concerns and how we can improve on things with either safety or environment or anything that concerns us.

A - 89. Interview 42 (13: 29 - 32): I'm working on a project now dealing with our waste water that if we proceed with it over the next five years we're going to end up spending twenty to forty million dollars on a facility to treat our waste water.

A - 90. INTERVIEW 14 (11:20 - 11: 24): The economy has an influence. Certainly. But in my estimation, which is why we decided to be proactive, the longer you wait the more costly it's going to become. And yes, we have to be driven by that part of the jigsaw puzzle. ... It's a living thing. The jigsaw is my favorite analogy.

A - 91. INTERVIEW 14 (8: 9 - 17): Well, uh, you can't ignore how well the company is doing financially. OK. We're very well situated financially, We have no long-term or short term debt and I think the last quarterly report showed that we had about 120 million dollars cash in the bank. Obviously, that is not all going to be spent on environment on this plant site, ok. The company is looking for ways and means to utilize that money, and in fact it was just announced that some of that will be utilized in Canada. But it is just that, again it gets back to the CEO and the decision that you're to improve on an environmental basis because it is just good. Ok. Very little of it is going to be remunerative in terms of return. That's understood.

A - 92. INTERVIEW 27 (8: 48 - 9: 4): But, it's interesting, that a lot of the discussion that goes on is: Well we've got to do this because we want to be environmentally right. What I've seen, is that when it comes to a plant saying that their priority is that they've got x million of dollars that they want to spend on environmental issues, they are going to get it, normally. It's probably one of the best arguments that you've got in that competition. Even over some of the capital spending, there might be another area where you're looking at a new product and you want to do some clean-up or whatever. Environmentally, in terms of spending, it's high priority.

A - 93. INTERVIEW 14 (11: 24 - 31): Yes the economy is part of it but um it's not it's not I don't think it's totally, I just don't think it's totally economic. I just don't agree that it's driven economically. I think it's as much about the culture, the vision, the pride, the who-wants to be on Good Morning America being torn to bits, uh, and whether you like it or not if a company is not making any money uh it's very difficult for them to make an investment that gives them no return. They are much more likely to say "can it". Because we can't see our way out of this maze. But we started being quite proactive at a time when we were not making major financial returns.

A - 94. INTERVIEW 27 (16: 48 - 17: 6): I think the CCPA is looking at sharing (costs of emergency response etc.) because Shell raised this a couple of years ago ... the companies that are prepared to pay this cost, should get some benefits back in terms of the other companies that belong but don't pay for it. So, I do think they're looking at balancing that in terms of money.

A - 95. INTERVIEW 27 (7: 52 - 8: 4): Now-a-days we've been spending from our capital budget anywhere from 30 - 40% every year on environmental issues.

Now, that's a big chunk of money. That isn't capital spending that's going to give you a return on your investment. It is just going to keep you in business.

A - 96. Interview 42 (2: 38 - 42): There's that (some financial recovery or product), and there is also the fact that you understand what your emissions are so that you identify and understand better where specific emissions are coming from and where your major ones are, whereas you might not have known that in the past.

A - 97. INTERVIEW 24 (5: 12 - 17): And then product stewardship, you don't manufacture things that are a potential problem, and if we doing it now, we will get out of them. In any case that was sort of one of the guidelines but we were trying to get ahead of that, but this all sort of crystallized the planning, and as sort of a guideline for the entire corporation. So everybody knows what is expected of them in respect to the environment. And not only the environment but also health and safety.

A - 98. INTERVIEW 8 (24: 8 - 15): For instance we have, if we buy any land here, you'd be surprised to see the lengths you have to go to to see the state of the contamination or whatever and the lengths that we go to. And the same if we sell any land. Oh yeah, the Bankers are heavily involved there. Absolutely. The financial institutions have taken note of that. In fact, there are standards now that, whatever the Chartered Accountants ruling bodies are, for environmental disclosure and all the rest of it. And you know I've recently gone though an exercise having to say what our liabilities are to the best of my knowledge and what sort of priorities are on them (to mitigate them).

A - 99. INTERVIEW 24 (5: 35 - 6: 2): One of the things I was concerned about, obviously you don't plan to blow anything up, but you still have these concerns. The potential always exists, no matter how low. So one of the things I brought in was to purchase all of the land that we could to insure that nobody could live really close to our facility. We brought all of the available land between the main transportation corridor around Edmonton. ... and so I proceeded to buy all of this property, which has now been completed, and fenced in. We also purchased the properties that we affected, the gravel pit, and we put in remediation facilities to recover the ground water and bring it back, and we've fenced it in, and leveled it out, I mean its not level, but its set up as being properly contoured and all that, and there is an artificial lake in one end and we've just this fall planted everything to trees and shrubs, so we want to have it returned to a natural landscape, along with some of the other property that we've purchased that is currently in the process of being cleaned up.

A - 100. INTERVIEW 14 (7:6 - 17): I mean with all that is inherent in that and the knowledge that has come in the past forty years and so what we've done over the years is consistently spend money on environmental improvements to the tune of, well it goes up and down year by year, but, on average I'd say we are spending 35% of new capital on this site every year on environmentally related projects. We just got another five and a half million dollars approved to improve our acetone emissions for example. ie reduce them. There is another five million for that CFC compressor. We've spent, if you throw in all in time, money, people, we've probably spent fifty million dollars on this site in the last ten years. Improving our environmental standards. And I expect, in fact I'm sure, that we're going to have to spend another fifty million dollars over the next ten years.

A - 101. INTERVIEW 8 (14: 9 - 19): How are we looking at the future. Is the cash going to be coming in? Are we in a strong position to deal with what we've got? So it's a longer term financial approach and its also one of the driving forces. The other thing I think that is tending to happen is that people are saying, look these guys are taking care of their environmental business, they're running their business, you can't run your business and not take care of that. It's a very integral part of it. If you look at our capital expenditure it's probably thirty to forty percent of our expenditure on environmental stuff. Since '88 we've spent forty million dollars and we're about half way there to the end of the decade. So in twelve years we're getting up close to one hundred million. In capital, to improve the environmental performance of this plant site. Now if I had said that in '88 they would have shut the plant site down. So that is where the long term planning is coming.

A - 102. INTERVIEW 24 (11: 10 - 16): Oh well, the thing is that they probably would have spent it, but if they spent two or three million a year over the past ten years, people would have accepted two million a year and you take it off the profits, you know, but now you're looking at thirty million in a chunk, and your profits for that particular product line are for example six million a year. Well, that thirty million is six years of profit, and what the hell we'll forget about this, whereas, if you had done it every year, and taken two million off the six, well you're still showing a profit, you're moving along, but if you wait until it is all in one chunk then you're in trouble.

A - 103. Interview 42 (2: 48 - 3:4): So, the idea is that if you're going to spend a significant portion of your capital every year reinvesting it back into the company to meet environmental health and safety issues, and they change over time. The more understanding and the more information that you have about your individual site, the more likely you are going to efficiently allocate those resources. Whether that is people, money, development systems or those types of things. So it's not strictly in response to regulation, but it has the potential to provide opportunities.

A - 104. Interview 42 (4: 6 - 11): (Shared values?) I think we share that because we've developed it over the last eight years and I've been working with Andy for the last twelve years. I know that Ian has said things that would make me believe that to be his philosophy as well. Like we're not going to spend any more money than we need to spend unless we understand how we're spending it.

A - 105. Interview 42 (7: 31 - 37): Maybe it's also too that the whole area changes so much. If you look at the area of environmental health and safety, the window that we operate in changes so much. We're not fixed in time so what we're doing today may not be enough even in five years from now. We may find something else out.

A - 106. Interview 44 (7: 5 - 8): Are you really dealing with the last 4% or the last 4% that you know of today. It all changes so fast. A lot of the things that were never thought to be carcinogenic turned out to be.

A - 107. Interview 31 (11: 44 - 48): (Due diligence more of a PR thing than a work-thing?) That's is my perspective, that is it exactly. And they video it I assume so they can show it across the corporation so other people don't re-enact the same mistake.

A -108. Interview 31 (8: 34 - 35): One of our plants in the States blew up in Pampa, Texas. A similar unit to what we have here, and I'm sure a lot of that had an impact on this plant site. What would happen.

A - 109. Interview 43 (5: 40 - 45): We're run more out of Dallas. They've had some fairly serious problems out there that they've had to clean up. I believe that an assessment is done and they decide which one gets the priorities. Every plant site is getting money for that. That's where all the money is going, to environment and safety and particularly environment.

A - 110. Interview 42 (2: 8 - 13): The basic philosophy is that we cannot do everything, but we want to stay in business. To stay in business we're going to have to be economically viable and channel everything back into environment health and safety. So, we try to prioritize what we've got the best that we can understand it.

A -111. Interview 42 (8: 1- 6): So, giving us $50 million and telling us to go after everything is not going to get everything done. So, there's an upper level in what you can manage. There's a general philosophy in upper management that says that we will maintain a certain level of human resources.

A - 112. Interview 42 (8: 6 -13): You could turn around and say, bring more people in and then you can spend more money on your project and get everything done. But, there's also an understanding that we are subject to external constraints. We work in an industry that goes through global cycles. So , do you bring people in when you have high cycles knowing you're going to let them go when you have a low cycles?

A - 113. Interview 43 (4: 38 - 41): I think they're doing as much as they can as fast as they can with the money we have. I don't think anyone's health is in danger working here. I think they're doing a tremendous job.

A - 114. INTERVIEW 8 (18: 2 - 12): It's as fast as we can basically go. You know, I had to address the Board of Directors last year, they come out once a year and have a Board meeting here, and I had to give them an update on the environment, and in fact the Chairman said "are you satisfied with the progress"... so basically I think we're making pretty good progress. I have to keep it in terms of the business as well. It's no good bankrupting the business. But I think we've made substantial progress and I think it's as fast as we can go with the resources we've got. And that's people resources. I mean with some of these engineering projects you can only do so many. It takes time. So yeah I think we're doing it as fast as we can get there.

A - 115. INTERVIEW 24 (17: 21 - 28) One thing you have to look at is just what happens if you don't do anything. Just look at the fur industry. The fur industry in Canada never reacted to the pressures from Europe and places like that and just ignored it, and the fur industry in Canada has been destroyed, completely destroyed, by a handful of people in Europe and elsewhere. They've been completely destroyed. A few practices like sealing and that could have been much improved, and made a lot less cruel and that, but the fact is that nobody did anything and the industry has been destroyed. Fur coats are an easy target. Let's face it, it wasn't for modern chemistry most of what you have at home wouldn't exist.

A - 116. Interview 31 (9: 34 - 35): You want to stay in your budget. You want to be a little bit ahead for tomorrow because you don't know what tomorrow is going to bring.

A - 117. INTERVIEW 24 (11: 10 - 16): Oh well, the thing is that they probably would have spent it, but if they spent two or three million a year over the past ten years, people would have accepted two million a year and you take it off the profits, you know, but now you're looking at thirty million in a chunk, and your profits for that particular product line are for example six million a year. Well, that thirty million is six years of profit, and what the hell we'll forget about this, whereas, if you had done it every year, and taken two million off the six, well you're still showing a profit, you're moving along, but if you wait until it is all in one chunk then you're in trouble.

A - 118. Interview 43 (3: 34 - 40): Well, I don't have any proof of this, but I was just at a training course for ISO 9000 and the fellow that was instructing said that the consumer has never been so well informed as they are today. He gave the example of Exxon in the States and that since Valdez, the consumers in the States really hurt Exxon because they would not buy from them. They've actually noticed it on their bottom line.

A - 119. Interview 43 (3: 40 - 43): He said in Europe the consumers are becoming much more well informed and they will not buy from companies who are not into recycling or who are stripping the environment.

A - 120. Interview 31 (6: 1- 2, 6): Yes it enables your plant to keep operating, because if you don't meet the environmental standards you are are closed down, right. ... So you have to be concerned about environmental regulations.

A - 121. Interview 33 (4: 10 - 11): Well if I lived close to here I would be worried (about disasters etc). I know even though I work in this kind of setting if we lived close I would be worried for my family. Because if anything does go wrong it can do quite a bit of damage to a big area.

A - 122. INTERVIEW 14 (20: 33 - 39): The reason I didn't mention stockholders was because in my mind they are the public. ... I am a stockholder. I suggest that if you look at the number of annual reports now that have separate chapters on environmental performance that the stockholders are as keen on improvement, because inherently if you get a bad record for environment the thing that the stockholders are there for, capital appreciation or continued dividends, will fall, or will be impacted at least.

A - 123. INTERVIEW 8 (24: 25 - 31): To the wise investor they take them into account. Definitely. It's interesting that our philosophy is not only will we perform financially but we will perform in environmental and safety affairs as well. We will be in the top quarter you know for the Chemical industry. We will be recognized for having that performance. People are demanding that. Companies going public or going for share issue people are taking that into account absolutely. So to me it is a driving force for the business. Which, we're just responding to that.

A - 124. INTERVIEW 8 (13: 40 - 14: 4): I think essentially why the change has come is quarterly results. That was the driving force that you have good quarterly results. For your stockholders. Now what is happening is that people are saying not only do you have your financial but you have your environmental record. What are your liabilities? There is almost an environmental balance sheet and a financial one. The way people look at the financial one is, how does the environmental balance impact that? What is the long term liability?

A - 125. INTERVIEW 14 (8: 24 - 8: 28): But really, it needs more than that too. You can't be the individual example within the industry. That is very relevant. It's like a jig-saw puzzle. There's various bits you bring together, and they all fit together, it's the publics, it's the pride, we know we're doing the right thing, ok, Um, so you get all this input into a corporation and then you say right we are definitely going to improve, ok.

A - 126. Interview 32 (5: 40 - 43): (Are your neighbors concerned?) No, they don't ask me any questions. I just tell them where I work and that's it and they don't ask me anything.

A - 127. Interview 42 (10: 25 - 35): Well, I know that we say we want to continue operating here and we want to continue with the public's blessing, but we also feel that there's a possibility that there could be sufficient outcry that could make the corporation think that this place is just too much hassle. It's not a threat that's ever identified, that anyone's ever really spoken of, but the corporation is always looking at their financial health through all of North America and I don't see why they would also take a look a other types of issues. Things like environmental and liability issues.

A - 128. Interview 31 (3: 33 -37): (What other driver ...?) Image. ... Corporate image, your responsibility to the community.

A - 129. Interview 33 (3: 29, 33): They worry maybe about image too. It doesn't take much to get negative. ... Even though it may not be considered big in the industry, the media could make it big.

A - 130. Interview 43 (4: 23 - 27): (Why not promote themselves more?) I think there's a lot more now than there used to be. I think if you meet people around Edmonton, everybody knows someone who used to work at C1. I don't know if and when these decisions are made if employee pride has any bearing on it.

A - 131. Interview 42 (6: 27 - 31): (Why not promote your own environmental behavior?) Well, I guess there's a couple of reasons. One is that it takes away from the overall ethic because you're segmenting your ethic by saying that we have these parts because they meet the needs of RC. I think you pull away from the overall ethic.

A - 132. Interview 42 (7: 28 - 31): There are other areas where we don't meet the standards we would like to be at, so to put all your emphasis on all the good things and try to ignore all the other things is to do yourself in as well.

A - 133. INTERVIEW 27 (12: 14 - 22): We've been going out into the community. We've sent people out to the school systems and try and talk to them about our products. We invited the public in to our plants as part of the program to try and show them, again, that we've been producing these products out there for 40 years. We think that we know the product pretty well. We think that we're a good, safe, quality company. We need to sort of bridge that gap somehow.

A - 134. Interview 31 (8: 6 - 10): Not so much concerns as it is curiosity. For instance my son is on a hockey team this year and at one of our gathering one of the moms said to me you work for C1, they sponsored our hockey team one year, what does C1 do? People have heard the name they have no idea what goes on at this plant. They are more interested in what kind of things are made here. Like what is a chemical plant. They have a hard time even grasping the idea of what goes on here.

A - 135. INTERVIEW 8 (8: 24 - 33): Basically we have a very good phrase that Perception is Reality, as far as the community is concerned. I know that I've gone to the SIA, the Strathcona Industrial Association every year goes to the Strathcona Trade Show, and I happen to live in Sherwood Park, so when I do my couple of hours on the booth, you're there to talk to the public, and it's very difficult when you have someone coming up and being very emotive about their child's asthma, and Industry is to blame. ... These are some of the concerns that you get, and its very emotive, very difficult to get people to talk to them on that level.

A - 136. INTERVIEW 27: (13: 18 -30): They are afraid because they don't understand it. There's 350 people in Oakville that got moved out of their homes. When they got a whiff of that, they knew it was chemicals and their first reaction was fear. What's it going to do to me? Then when the regulatory people told them to get out of there and they wouldn't let them back into their homes, now they're convinced that it was dangerous to their health. Our people, here in this plant, that produce the product, don't even wear protective breathing equipment. They're smelling that stuff and working with it 8 - 12 hours a day. We're monitoring their health and there's no health risk that we've been able to find.

A - 137. INTERVIEW 14 (10: 34 - 41): So its, ah, I think again that's the publics and the media and you know the concern, it's all driven from that aspect. But our push is just to be better. It's .. here's the trite phrase, to be the responsible corporate citizen. As you know with the North Saskatchewan River study, we initiated that here, the last two people we had to get on board were the city and the Capital Regions. But I think that someone was sufficiently astute in both of those organizations to say well, better to be on board and to know what's coming rather than being off-board and getting it as a surprise.

A - 138. INTERVIEW 24 (14: 38 - 40): We want to be in business in the long term and you have to have the public on your side. I don't know if it helps, the chemical companies are still the bad boys ...

A - 139. Interview 42 (1`2: 15 - 18): From the comments I get, there's a certain amount of awareness but there's so much information out there they don't know what to do with it.

A - 140. INTERVIEW 24 (12: 29 - 33): ... and we know that deep-well disposal here in Alberta, there are social pressures to reduce it, but when you really look at it there is no scientific reason why it shouldn't continue, the geology is there, it is a shell that can hold oil and gas for a hundred million years, so there is no reason, but there is still this pressure to discontinue.

A - 141. INTERVIEW 27 (11: 34 - 41): In my view, there was absolutely no risk, hardly. There's no way we would put our own people at risk that were working on the product out in that 40 below weather. ... But anyway, that's this perception. That chemicals are so dangerous. Most of our chemicals here are not dangerous.

A - 142. Interview 42 (6: 31 - 36): Industry in this area, regardless of who who are, is all painted with the same paintbrush if anything should happen. So, to turn around and isolate yourself away from other industry in the area is to be somewhat divisive.

A - 143. Interview 42 (11: 10 - 17): They know very little about us, that fact that we're even here. If they do know anything, it's because they know someone who has worked here. The majority of people don't know anything about us. They're amazed that we've been here since 1953 and are the first major petro chemical plant and deal with global markets. They're amazed that there's an entity as large as that and they don't know anything about it.

A - 144. INTERVIEW 27 (4: 47 - 50): Now the chemical industry, because we're in the industry, I really feel gets a bad rap. Because the public perception out there is that we're producing all these dangerous chemicals.

A - 145. Interview 43 (4: 41 - 44): In fact, I think it's overblown somewhat in the chemical industry whereas people go home and they're dumping more down their sinks at home than we are back into the river. That goes for the city as well.

A - 146. INTERVIEW 14 (4: 17 - 4: 21): It's everybody, it's not just Celanese, we're all in there. We know perfectly well that the main pollutants of rivers in general are municipality waste because they don't have enough tertiary and quaternary (?) treatment, you know that as well as I do...

A - 147. INTERVIEW 14 (4: 3 - 21): Clearly, the environment is a major concern for the public. I don't think that the public knows what there are talking about most of the time, heh heh, they just want cleanliness in general. That doesn't mean to say that they don't want to run two cars per family, and certainly would object to the old clunkers having emissions testing, and what do you mean you want me to use a different gasoline that may cost be two cents a litter more than the ordinary premium. That's different. Well you and I know both know that that's not the case, and if you look at emissions in a very broad general sense I think Industry in Canada is responsible for I think that last number I saw was sixteen percent of nox and vox, and then transportation is responsible for 49% of nox and vox, but this impinges on a different area. Heh heh heh, this is different. I mean, go after these big guys, they're polluting everything in sight. That's not correct but the public is not aware of that.

A - 148. INTERVIEW 27 (5: 31 - 34): But, the chemical industry, quite a number of years ago, started to change their processes with new technology and started to clean up their act. And now, for years some of them have been spending a tremendous amount of money on clean-up and have really improved their act. They aren't getting any recognition for their efforts. So, that's a perception out there.

A - 149. Interview 32 (4: 44 - 45): I guess the community aren't concerned now because these companies have corrected all the things that were going wrong, so the public isn't as concerned now. Things are going good.

A - 150. INTERVIEW 8 (6: 33 - 7: 6): I was working on the Clean Air Strategy for Alberta and we had an open house, and we were looking at trying to evolve a position on CO2 emissions, which is kind of important to the Alberta economy and everything else, and we had an open house and we toured around the province, and the one in Edmonton was on an October or November day, the Oilers were playing at home, and we had thirty people turn out. And that is a pretty important subject. And you look at it then, and you say the public are not interested. How do you get their interest in it. Another one that we did was through the Strathcona Industrial Association, which is basically all of the Industry in this area, and we had the City of Edmonton Fire, the Police, the Strathcona guys, and we held it at the ACT center at Rundle Park, we'd advertised it and said to people, you know, just come and talk about what happens in an emergency, and we had nobody turn up. It was not on their agenda. Yet, if we have an incident, it will be very high on their agenda.

A - 151. INTERVIEW 24 (15: 19 - 25): Over the years we've spent well over $100,000 just setting up meetings in community centers with the public, and the grand total of interested people that went to these things is about twenty or thirty, because the people who would attend would be other people like myself from other companies who want to see how it is done, consultants who are in the business again to see how it is done, a few people from the press, and then you know, if I was involved, my wife would drop in. But if you look for the truly interested people it would be not more than two three four five in each two day seminar.

A - 152. INTERVIEW 8 (7: 36 - 41): Well, there are some that care. Basically, I think that because of the oil and gas and the economy that we've got here, that if you don't noise them out, and stink them out, and evacuate them out, people will let you live. Basically. Yeah, I mean they're realistic. They're used to industry around here. It's not as if we're in pristine agricultural land and your crop yields are down and all the rest of it. It doesn't mean that we're going to take people for granted.

A - 153. Interview 42 (5: 35 - 41): Whereas, we will go in and say that this is a long term commitment, we will probably be speaking into a vacuum, but we have an obligation to provide information and we feel as long as people have an opportunity, then we are meeting part of our responsibility to the community in terms of talking about what we do and how we do it.

A - 154. Interview 31 (4: 14 - 20): There is a little pamphlet that comes out I don't know how often, three or four times a year, and it's Community Awareness and Emergency Response ... is distributed to the communities within I don't know what distance of the plant say Sherwood Park. Plus every employee receives one if you are on the plant site so that is way of getting it out or whatever.

A - 155. Interview 32 (6: 35 - 36): They publish, well with the CAER program there, they public a little pamphlet I think it is quarterly and they give it to the people in Strathcona and this part of the City.

A - 156. Interview 31 (7: 40 - 47): For certain things they put up booths and stuff that are around. The thing at Rundle Park. I don't know what it is and they come out the Sherwood Park once a year and to the fire hall for whatever day that is. ... They advertise their tours and people who are interested in the summer can come out. Like Dow you see them advertising plant tours.

A - 157. Interview 32 (2: 18 - 21): The government with their labour relations and also with the corporation wanting to be a good corporate citizen, which I think is the main thing now. I guess they are really stressing this being a good corporate citizen and the like to have their CAER program. ... I guess most of these industrial outfits down the road here involve the community as to what they are doing, or even tourists.

A - 158. Interview 42 (11: 46 - 12:1): The other part of it is that all of last year we came out as part of CCPA emissions plan and our glorified adding machine gave us our overall emissions. So, we had this information and we felt we should be sharing it so we came out with an environmental report card. We sent that around to our stakeholder list which is the same list we circle the CARE newsletters to. We took a couple of ads in the local monthly across the river and started putting some of that information in that.

A - 159. Interview 42 (9: 51 - 10: 3): You can try to set up opportunities for return communication and you can try as best you can through environmentalists that are knowledgeable, you can try and feel what the community's perceptions and views are, but one possibility for an advisory panel is that you can bring a group of people together and let them set the agenda for discussion.

A - 160. Interview 42 (9: 44 - 51): There's a lot of discussion about community and what exactly comes out of community meetings. There's a lot of peer pressure and a certain amount of internal pressure too to have some sort of an advisory panel and we currently don't have one. We are looking to establish one simply because one of the its purposes is that as much as we in terms of providing information, it's very often one way.

A - 161. INTERVIEW 8 (8: 1 - 9): We've developed a relationship with the editor of the Beverly Page, one of the local papers, that basically does Clairview and Hermitage, and we're looking at trying to get from eight to ten people from the community, community leaders, if you like, to say, these are some of the things that we're doing, and what concerns do you have guys? What do you want to know about us, to make a decision. Because we don't think that people have the information. And we're looking at getting people like a school principal, a couple of the local business people, getting a couple of high school students, getting some of the community leagues. Saying, you live opposite to us, what are some of your problems with us.

A - 162. INTERVIEW 8 (8: 9 - 18): And it is interesting that other companies have done this across North America, because there is no regulation in the US where they have to have these sort of community advisory panels, and the number one concern is well "are you going to keep the facility open for the jobs?" They are usually economic instead of environmental. Unless you've got a bad track record. And you get that with some of the Louisiana ones, they have long history of arrogance there so, so they have some other problems, but it is a difficult one to do. We're struggling. We're just starting that. It could very badly backfire in my face, I don't know. To be honest, Greg, it's a new path for us.

A - 163. Interview 44 (3: 8 - 11): If we get a complaint, it will be acted on right away. One of the biggest problems is that when the community sees stuff coming out of the tower, they think it's dangerous.

A - 164. INTERVIEW 27: (19: 31 - 36): The way we monitor it is we try to get more information out to the community, get them involved more, or in any way we can to sort of understand what we're doing. That's a tough one. We talked about the media a little bit and I'm still going to try and do some things with the media. I don't know how successful I'll be.

A - 165. INTERVIEW 24 (15: 29 - 33): So right now we are scratching our heads to figure out how can we avoid this spending of another batch of money for nothing (meetings that no one attends). For the people here we have open houses, all summer long, tours five days a week, a mini tour bus ..., we send out report cards, and we figure that this is enough, we don't need to spend another batch of money uselessly for things that people won't attend.

A - 166. Interview 43 (2: 45 - 51): Not that our chemicals on this plant site are that dangerous, but over time, perhaps. It eventually comes down to trying to stay one jump ahead of the government as well. I'm sure that's been an influence. If you read the newspapers, you sort of see what trends are coming that people will just not accept anymore.

A - 167. INTERVIEW 27 (5: 25 - 31): Yes, I would agree with that (environmental behavior is driven more by perception than by science). If the whole industry and people in the industry say very openly: "Look, the way we used to do it in the 40's and 50's, we didn't do it very well. We didn't pay attention to what we did to the environment. We used to dump product into the river. We used to fill it into ponds. Dispose of it in the easiest way." So to some degree, we probably deserve the bad reputation that we've got."

A - 168. Interview 32 (7: 15 - 16): They sponsor things like the Burkinbrier (ski event), and also Junior Achievement.

A - 169. Interview 32 (6: 40 - 43): And also, I am involved with United Way, and we have raised quite a bit of money in the last few years, probably about 3/4 of a million dollars, just from the employees and the company matches whatever we collect, so probably about a million and a half in the last few years. Also the food bank, I coordinate the food bank here. I just started that this year, and the company helps us with whatever we do for the community.

A - 170. Interview 31 (11: 44 - 48): (Due diligence more of a PR thing than a work-thing?) That's is my perspective, that is it exactly. And they video it I assume so they can show it across the corporation so other people don't re-enact the same mistake.

A - 171. Interview 31 (4: 3 - 6): I mean people, you have to think about your corporate image, you want to be seen as a good citizen of this community, right. You don't want people to think that Celanese is putting stuff in the river, putting pollutants out it's stacks. So you have to be open and truthful, because there are people in the community who know what's going on. People in this community work in this plant and they are going to tell their neighbors.

A - 172. INTERVIEW 24 (16: 28 - 31): Well the thing is that the people that work here obviously know what is going on. They know what we do to protect them and the safety precautions and all that because they are directly involved. But the basic person who lives across there, most people, you know, don't have any idea or a clue about a risk.

A - 173. INTERVIEW 8 (16: 24 - 30): Well, basically they (the Board) represent the stockholders. ... The Board have to deal with them, so yeah the stockholders, the people that own our stock. We have the community, and we have, to me, I guess its the local political bureaucrats if you like. I'm not talking particularly about the politicians in the Strathcona County or the Edmonton City Council, but the Emergency people, the Police, the Fire, Disaster Services. They are a major stakeholder. To us. We work quite a lot with them.

A - 174. INTERVIEW 8 (20: 11 - 15): Yes, some companies don't see it. It's interesting. I'm sure you'll get a different list of stakeholders from different people. I'm sure that Sherritt's would be completely different. Theirs would be stockholder, stockholder, stockholder. I would suspect. I don't know. And I guess it is how you view who your stakeholders are and who you're responding to.

A - 175. INTERVIEW 8 (8: 9 - 18): And it is interesting that other companies have done this across North America, because there is no regulation in the US where they have to have these sort of community advisory panels, and the number one concern is well "are you going to keep the facility open for the jobs?" They are usually economic instead of environmental. Unless you've got a bad track record. And you get that with some of the Louisiana ones, they have long history of arrogance there so, so they have some other problems, but it is a difficult one to do. We're struggling. We're just starting that. It could very badly backfire in my face, I don't know. To be honest, Greg, it's a new path for us.

A - 176. Interview 42 (12: 1- 9): For all of last year, every single person who visited this facility went through a tour with me and any question or concerns were responded to. So, I'm not saying you should try and hide from anything, but why create something when you already have a belief that you are doing the right thing? Why divert yourself off the road because other people have their own agenda that say you need to do this or that?

A - 177. INTERVIEW 14 (9: 1 - 9: 13): You know, if someone came along here tomorrow ... and said "close the Edmonton facility" that's 800 people out of a job. The spill over effect if probably four or five times so you impact four or five thousand people around you. We consume about one and a half percent of Canada's natural gas per day, right here. So certainly you have quite a large impact on the natural gas market, and on pricing, and on Royalties, and on taxation. There are major repercussion when you make decisions like that. So the average CEO has to then get this all together and say Ok, where are going with this, what does it mean to us, what are the ramifications, not just the money and the capital, it's the total social ramification of some of these decisions. Love Canal, there's a prime example of social repercussions.

A - 178. INTERVIEW 24 (20: 5 - 11): We've had an open door (to activists). If they want to visit we work with them, we've asked them to work with us on the River Study. We try to keep them involved you know. With what is going on, so we've got nothing to hide. And even the environmental movement, some have been in there a long time, and it takes on a life of its own, and the chief participants make their living out of this. And they switch places too. Plus, again, people like to have their name in the news, and it gives them a sense of power and all that. Its the same thing. The same reason. They feel that they have to go out on the wild side to get peoples attention.

A - 179. INTERVIEW 8 (6: 29 - 6: 31): ... you've got to then take a step back and take a look at the environmental movement, because really they are the ones who are driving the regulators. Who are the public?

A - 180. Interview 43 (10: 7 - 15): Unless there is an incident (media couldn't care less). Then it gets blown out of proportion. And then Andy gets misquoted in the papers. ... It's because they don't have a person with a scientific background working there to respond. Maybe they should.

A - 181. INTERVIEW 27 (14: 31 - 42): A major event, something like that (explosion in Brownsville), is what gets people up in arms, or the media. The media has such a tremendous effect. I came back from that Oakville experience and I was thinking of having a media day and inviting the media out here and do what ever it took to get them out here just so I could say "Here's what we've been doing for forty years. Here's our product. We'll answer any questions that you have.. We have nothing to hide. We want you to know what we're all about." But, when I talked to some of the media people they said: "I don't think you'll get much interest. We're in the business of events." It's bad news that sells newspapers.

A - 182. Interview 42 (14: 1- 6): (Eventual disaster?) There's so many environmental issues out there from different sources, but there will always be those sorts of things. I would think it would have to be something catastrophic. It would have to be something emotional on the part of the public because otherwise they wouldn't do anything.

A - 183. Interview 42 (14: 6 - 11): The legislatures are trying to respond to emotional (public perception) things. They're under pressure and they don't have the ability to do it all. They have to push it on to industry to do that stuff. It would have to be something really emotional because the politicians would respond to that.

A - 184. INTERVIEW 14 (15: 3-9): And what they try to do is ensure that government regulation is tailored so that the Industry can do as much as they can. OK, as much as they can. Clearly this is not always possible, but they do try to get a true vision as to what is actually happening out there and what Industry can do, and try to moderate let us say, what regulation asks. In an attempt to ensure that it can be done on a voluntary basis and that it will be successful. I mean, there is no point in trying to climb Mount Everest without having the right stuff.

A - 185. INTERVIEW 14 (17: 18 - 35): But the CO2 one is a real question mark. There is a real dilemma. And to be honest, I think it's going to happen. I think everyone is going to go to Berlin and everyone is going to say it's going to have to be the same by the year 2000 as the year 1990. I'm telling you, major repercussions, but I am no more convinced than I was five years ago that it's real. I am convinced, say, about the Amazon basin in terms of photosynthesis, because I've flown over that area. It was twenty years ago, maybe sixteen years ago, and you just sit on this plane and you fly over this for about four hours. Ok, and as far as you can see on either side is just this enormous green carpet, and the humidity and the temperature and everything else. But what I cannot grasp is that we should be tied to, and everybody else, that we should be tied to a reduction of CO2 number one, know that it is going to increase in south east Asia and China number two, and three, is it real. Is it real. I just don't know.

A - 186. INTERVIEW 8 (5: 39 - 6: 5): I believe that the legislation tends to follow places like California and like that, and some of the European countries are more stringent. Alberta has a completely different approach to the regulators which has to be taken into account. Certainly these days, what they tend to do is, the environmental regulation is done by dialogue, and you're going to get people saying how effective that is, and whether it is or not. I think that people who are realistic are happy with that. There is a balancing act here, Alberta is open for business. I think they welcome responsible industry. I think that people have to realize that there is a balance there.

A - 187. INTERVIEW 14 (14: 28-30): But I think that when you see an organization that has accomplished that I think Government has got to talk to them because obviously it's been a major change, a major accomplishment.

A - 188. INTERVIEW 24 (8: 2 - 11): But what we're saying is that somewhere along the line we have to get some benefits from these things, because there is no money in it for us. In fact, on the contrary, we've got a clause stating that if we don't get credit for it that we're going to discontinue it. And the final, the biggest one of all, is going to be a co-generation project which is basically provincial regulation prohibits you right now and this would be to put in several hundred gigowatts of electrical capacity using gas turbines and generating steam from the exhaust, and we would then shut down our powerhouse, and so then what you would be doing would be generating 400 gigowatts of power and shutting down 400 gigowatts of coal generated power, and the net, we would continue to use about the same amount of natural gas here, but the difference would save a batch of CO2 somewhere else.

A - 189. INTERVIEW 14 (21: 23-35): Continuous improvement I think is certainly going to be taken into account when governments write regulations. For example, when we make the cellulose, (for cigarette filters) when we expanded our facility, one of the commitments we had to give to the government is that we would significantly reduce our acetone emissions. Which is the 5.5 million dollar project I was talking about earlier. So and of course we installed, while we did that expansion, we installed additional absorption capacity. But over and above that we wanted a particular limit and they said, which was above our former limit, and they said we will give it to us, but you have to come back to us by the year 1994 worth plans to significantly reduce that emissions level. And we said, yup, we'll probably, we'll do it. That's the 5.5 million. I think that's inevitable.

A - 190. INTERVIEW 27 (6: 38 - 49): We should know how to run our own business and do it well. That's what we're in business for. We've certainly always tried to be proactive and keep ahead of legislation and I think that's a proper stance. I think that if you just sit there and wait for the legislature to tell you what to do, you're going to be in trouble. But certainly, legislation has an effect on the pace. That things get done. I think that's where legislation helps both industry and the general public because then it sets some targets and goals and says to Industry: "Well, you can't wait forever. Let's get this done by such and such a date. Let's set some limits."

A - 191. INTERVIEW 24 (13: 3 - 5): Government wants to pass laws because they want to show, hey, we're very much concerned and we're doing everything in our power because of the public perception type of thing.

A - 192. INTERVIEW 24 (7: 17 - 23): Well the thing of it is that you're looking at how government is going to be after industry for a long time because it's a way of showing their concern without costing any government money, and at this stage there is very little more to be gained by bashing industry. At least not in the Edmonton area. But government will continue to do it for the simple reason that they want to be shown as proactive. Yet they don't want to be spending the money themselves for some of the municipalities, and they also don't want to affect the average Joe's lifestyle.

A - 193. INTERVIEW 24 (8: 32 - 40): The other part about it though, if you look at where the CO2 comes from, well over 60% comes from transportation basically, the private car and all that, and so if you really wanted to cut down by 20% then you'd come back and say we're not going to have a car bigger than the Neon or the Tercel, or something like that, and maybe restrict one car per family, and encourage buses or even go back to the electric driven, and generate electricity using nuclear because our hydro, and these are all things that are known, and you can cut back a lot on CO2 generation, and you can go nuclear and you'd have to address the issue of waste disposal but I see not problem with that, technically very feasible, politically a different matter.

A - 194. INTERVIEW 27 (15: 37 - 40): I would say, overall, government doesn't do that bad a job on the environment and health and safety legislation. Most of it is sort of driven to protect you and I anyway.

A - 195. INTERVIEW 14 (16: 13 - 16: 19): But I do think, I personally feel that that initiative and the consulting, working, advising, the government is far superior to what you've got in Ontario where you've got a lot of people running around like we're here today and we're going to go through your files, I mean, it really doesn't make a whole lot of sense. I believe in consultation and debate, more that the great white sword hanging above you. I just can't understand...

A - 196. Interview 33 (2: 20 - 22): Yeah, you just cleaned them up, there was no damage. Now you report everything. I think the company looks more at the environment now and a lot better than back then, say when I first started here. They must have looked at it then too, but now they act on it a lot faster if something goes wrong.

A - 197. Interview 33 (6: 18 - 21): We have been told that any kind of spills or anything we report them immediately. That's been within the last five years, maybe more recent than that. Before that you were supposed to report all spills. Now you report all spills and if there are any changes done for our specs our company environment people tell us and our unit advises us what to do. To find the problem and find out what the problem is, if we exceed the limits.

A - 198. Interview 31 (3: 41 - 44): Sure, but how are you doing to determine that (whether community knows about incident or not). You have to treat all incidents equally. If we have a release of something one day that doesn't smell the next day we release something that smells, it can be smelt across the river. How are they to know if they have to report it if they can pick and choose what they report., Everything has to be treated the same. Does that make sense?

A - 199. Interview 42 (10: 13 - 20): The fact is that under the current regulations if we're making a modification or changing our license, we have to publish the fact that we are doing that, the legislators are going to also take that into account. We had a case where we reduced emissions by re-routing to a different incinerator. We had to go and publish the fact that we were making a modification to our process even though it had a positive impact.

A - 200. Interview 42 (3: 49 - 53): (Knowledge and education as a driver?) I don't know. I think it's a significant opportunity and if you don't recognize that it's there, then I think you could look at regulation and legislation and have a very negative view towards it all and do just basically what you need to do to meet it. Maybe it's the philosophy of looking at something and saying: Is it an obstacle or is it a challenge?

A - 201. Interview 42 (4: 37 - 41): (Economic efficiencies are the main driver?) Yes, I would say so. The regulatory stuff is a given. It is going to come regardless.

A - 202. Interview 31 (9: 22 - 23): My perception of this plant or this company is that they do more than required for environmental concerns. I say that very honestly.

A - 203. Interview 44 (5: 28 - 29): I don't think we have fear of regulation because we're normally ahead of it anyway.

A - 204. Interview 33 (3: 23 - 24): A buffer, not a safety factor, but a buffer. Maybe it is just the company has a community conscience too. Make sure that they don't upset too many people.

A - 205. INTERVIEW 24 (6: 44 - 7: 8): And yet government does not want to affect anything that touches the average person, like for example, in Alberta it isn't like California where you have to bring in your car once a year to get it tested to see if it is polluting. Just a while back we spent a quarter of a million dollars controlling a vent where total emissions were equivalent to about one smokey old car. I laugh at Alberta Environment. I say we should just buy up one of those old clunkers and shut here down and that would be equivalent, but you see government wants to show they are proactive, yet they do not want to affect the average person's lifestyle. So you else is left to go after? So far, they have never wanted to attack the cities either, the municipalities, for better sewage treatment and all that. Calgary's had to put in tertiary treatment because there is trout in the river, but what this study will show is that Edmonton also requires tertiary treatment, there is no question about that.

A - 206. INTERVIEW 14 (6: 40 - 7: 6): Look, we can play this two ways. We can either wait for regulation and wait on what is going to happen, or we can decide that we really should be proactive to the degree that continuous improvement in this area is inevitable, and we decided on the latter course. That there is no point in going out and fighting this regulation and that regulation and the next thing. What we have to look at is measured progress to meet our customer, and our customer in this area is really the public and the local authorities. So we decided that we would begin measured continuous improvement measures.

A - 207. Interview 42 (4: 11 - 16): Certainly we know that what was acceptable ten years ago environmentally is not acceptable today. We cannot assume that we can fix ourselves in time and say that this is the best that can happen. We need to keep thinking down the road.

A - 208. Interview 42 (9: 4 - 10): (foreign jurisdictions a concern?) Yes, because C1 is linked in the US, we can book and see what the EPA is doing. So, there's a whole range of avenues that the corporation can use to turn around and say that by this date we want to do such and such. I was kind of intrigued by the fact that insurance companies were seriously looking at the Berlin conference and their part in it.

A - 209. INTERVIEW 24 (3: 43 - 46): Well, usually when new regulations are passed you don't have that long to comply, so if you have a bunch of them that come in, and Environmental regulations don't tend to grow evenly. They sit still for a while and then they jump. They make a step change, so unless you're getting ready for that you've got some problems.

A - 210. Interview 43 (6: 4 - 9): I know there's always the threat of regulation coming and that's a real issue. You always want to be ahead of it. You don't want to be caught without a resolution to something and have the process shut down. Since all of our processes are so connected, if we lost one, it would affect most of the processes on the site.

A - 211. INTERVIEW 8 (5: 13-18): What drives the legislatures except public opinion? There's a lag there. The other thing is that legislation comes in a says "you will be in compliance within x days or x years", and industry basically likes to plan and do things in longer terms, and spread the cash flow out. Um. If you can take a longer term approach and say this is where were are heading, these are the steps we're going to go, and the time line, and all the rest of it. If you can plan that it is a much more cost effective and you get there a lot easier.

A - 212. INTERVIEW 8 (11: 2 - 7): But it's a whole change of mindset for the regulators. If you talk to the senior bureaucrats, then yeah, but if you talk to the guys you actually deal with on a day to day basis, they have a regulation in front of them and they have to regulate according to them. And you're saying "well ok, but let's look at the intent, not the actual law, alright, and we'll be in compliance with it, but don't push me to that, because really we should be doing something different."

A - 213. Interview 44 (7: 39 - 43): I think if the industry keeps on top of it, it won't get tougher. I think industry's pretty responsible in most cases. You still have the shysters. There's that couple of them in Ontario who went to jail for that (Bata executives), they're just like crooks.

A - 214. INTERVIEW 8 (7: 6 - 16): Now if you look at the regulators. The people that the regulators see are the ardent environmentalists in a lot of cases, the special interests people. Mow some of them are very reasonable, but others take the view that any means justifies the end. And they are expert at getting the press all stirred up, so very often the government is pressured into positions that really they don't want to get into, and that a lot of people don't want them to get into. So they have to respond to that. You know, they do have politicians as bosses. I think they do a pretty good job in Alberta actually, and basically what they are doing now is having a hands-off approach to environmental regulation. What they are saying is: "Industry you go out and satisfy the public's demands and we'll be happy".

A - 215. INTERVIEW 24 (1: 26 - 30): I've been involved with the environment here a good number of years and the first series of projects were really tied in with an energy conservation prototype that we were programmed, and I was actually the process engineering superintendent at that time, and part of my responsibility was to look after the environment also.

A - 216. INTERVIEW 27: (12: 41 - 45): Again, that's something that we've been working on (stopping leaks). We've a group in here last year and they've been going through all of our processes and our valves and we're trying to find ways that we can improve every leak in there.

A - 217. INTERVIEW 14 (7: 23 - 7: 30): But let me give you an example. A large number of these buildings on this site have traffic-tile, compressed asbestos, standard building material forty years ago, thirty years ago. I just recently got a review done, ok if we took all the asbestos out including traffic-tile which doesn't emit material, but let's just say that we're going to get rid of the stuff. That's another five million dollars. Ok. And I hope over the next one to two years to get that money and take all of the asbestos out, all, a great majority of the asbestos on this site out.

A - 218. INTERVIEW 24 (4: 20 - 28): You look at what is happening too, what are some of the issues, and which are the ones that can affect you, and obviously CFCs was one, and we started looking for replacements of CFCs for some time. In time we replaced about half our capacity this year with a substitute and we're going to do the rest of the plant next year. We could have continued operating with CFCs, I know lots of organizations that have been buying up CFCs, there is almost a black market in them right now, to keep their operations going without making any changes, for as long as they can, if they can stockpile ten years supply they will continue to run. So that wasn't the approach that we took. Well we'll just get out of CFCs. So that's what we did. We made plans, you put it into your capital planning process and just get it done.

A - 219. Interview 32 (1: 43 - 45): 1974 that is when they dug deep wells here. I don't know how many hundred of feet they went down past the rock that and when they shut down our open pond, we used to have an open pond instead of sludge and we flared stuff without any control or whatever emissions was coming out and being flared.

A - 220. Interview 44 (1: 16 - 22): When I started here, one of my first jobs was to drive here over this field across the river and stop the car eight or nine times to smell. In those days the formaldehyde unit was quite strong and that was the way we kept track of it at that time. The environmental changes in this plant and the amount of money that we've spent on it is great. You no longer smell formaldehyde.

A - 221. Interview 31 (3: 21 - 22): Well, we are inside a building. If we do anything we might spill a bottle on the floor sort of thing. Our environmental impact is pretty select.

A - 222. Interview 33 (2: 36): Again in all spills there is an investigation afterward. To determine the cause, the reason why.

A - 223. INTERVIEW 27 (12: 34 - 41): We get the odd complaint and the smell is what we get over here in Clairview. If the wind comes from the SE ... and our product smells when we're producing. It's got that vinegar smell. They'll smell it over there and someone will pick up the phone and complain, but when this was built in 1953, the government said that they'll never build over there. Then they built the city around us. It's impossible to control the smell to that extent.

A - 224. Interview 33 (8: 19 - 21): I have had contact with people from other plant sites and that and we talked just briefly about it not in detail and it seems that stuff that we do is more than what they would do at their sites. Maybe just their company the way they treat the environment and stuff, safety is higher.

A - 225. Interview 43 (4: 53 - 5: 2): When you look at the autobody shops, dry cleaning places or where ever, they try to get rid of their waste, but there's only one place where it can go and that's into the city sewer.

A - 226. Interview 32 (5: 15 - 16): I think they are right up to speed and sometimes personally I think they go a little overboard, enforcing all this safety in the environment, but I guess they are doing things higher than what is required of them.

A - 227. Interview 42 (2: 13 - 17): As we gather information and continue to refine our picture of what the plant site is and where we gain benefits in terms of emissions reductions or, in some cases, it's looking at it and developing recovery projects where we can actually recover something.

A - 228. INTERVIEW 24 (7: 23 - 36): And the same thing goes, as an example, with greenhouse gases. Ok. At this stage, the government, the federal government especially, is putting a lot of pressure on industry to reduce emissions of greenhouse gases. 20% by the year 2000. I think that this will slip, but it doesn't really matter because you know that this is coming down the road and in fact I'm preparing a document for the company as a whole on how we're going to deal with it. And our commitment, and the Federal government is asking for it. Industry commitment. So basically I've said ok we're out of CFCs that one of them, and out of these other things, and we're also going to go into energy conservation by about 2% per year, but what I point out in this is that we made our big strides in energy conservation decades ago already. In fact, if you look at what happened when we first started this energy conservation program we were using 35 million standard cubic feet of gas a day, and we are now using 25 million except that we are putting out five times more product than then, so there's been a complete turnaround. Let's face it, all the good projects have been done, anything more is just tiny incremental, so if you look at the companies that got a head start on this are actually at a disadvantage to the ones that haven't done anything.

A - 229. INTERVIEW 14 (17: 11-18): And ... this is the dilemma that you have (laughs out loud) and the thing about it of course is that there is no point in trying to isolate it because there is no use for it. What are you going to do with all of that CO2 for everybody, so the only thing you can do is go in for energy efficiency. Burn less carbon. Well, that's fairly easy to say and not as easy to accomplish. We went through a fairly extensive energy reduction program here in 1978 1979 1980 so there is nothing out there that is glaringly obvious at this point in time in terms of that reduction. So this is one of the dilemmas.

A - 230. INTERVIEW 14 (21:35 - 22: 7): I don't think it's any different for the government. I know for example that Suncor is going to spend a major amount of money to reduce their SO2 levels, so umm and the governments are charting, the is the ERCB and the National Conservation Board, whatever that Board is now, and they are going to drive it down, I mean that is part of their continuous improvement program. Ah yes, it may well be that ahh if you take the closed loop that Dow is recently installed, I think that the government are going to look at that and say that's a brand new plant and they had the opportunity to design the whole plant in those terms etc etc, and you can't expect Celanese overnight to go into closed loop situation, but that does not mean that they are not going to look to us for ongoing improvement whether it is emissions into the air and/or water quality or the limited use of deep-wells. I mean, we are going to examine that, not because it is in regulation but because we can see it coming. and It's just the right thing to do. So, yes I do think that things will get tougher and tougher. Umm.

A - 231. Interview 43 (3: 7 - 10): Well, partly from the improvement in science so that you can monitor things better and more knowledge from the scientific community. In the past, people didn't even know what chemicals would cause cancer or whatever.

A - 232. Interview 42 (2: 31 - 32): It provides an opportunity that if you want, you can take advantage of that (extra information collected because of regulation). I think that's relevant.

A - 233. Interview 31 (1: 42 - 45): Since there have been a lot of changes on the plant site since I started working here (nine years) I don't know necessarily if it is due to change. I think my perspective as a lab technician the lab jobs are changing very rapidly because of technology. I have seen much more emphasis on final product quality, process testing, we can't afford to have office spec the product so on-time results are a lot more important.

A - 234. Interview 31 (2: 21 - 22): I think maybe it is not the technology that drives the environmental monitoring, maybe the need for close environmental monitoring drives technology.

A - 235. Interview 42 (2: 17 - 25): So, a number of other opportunities present themselves once you get started. You gather more refined information about your facility. In many respects, the things I've heard from other people is that it's a major pain to have to collect all of this information in response to all of these new regulations, but one of the benefits that has come from it is that we understand our operations much better,. So, there is a benefit to us aside from the high resource cost.

A - 236. Interview 42 (5: 30 - 35): For us, it's just a given. So, when we talk about communicating with people, they can't to go out and measure how effective their communication is, are they influencing opinion, what do people think about them. But, they're not sure what to do with the information when they get it.

A - 237. INTERVIEW 27 (8: 8 -19): To me, the major change has come about by new technology. If you looked at this plant and how it was constructed in the early 50's and went through those units now, there is none of them that would even look the same. The outer shell is still there, but I'm talking internally because the technology has just changed tremendously in every one of those units. With that change, they've improved the operating standards, what they've been able to do, how we've been able to deal with the by-products and the waste products that we used to just get rid of, now we've turned them into cash because we've found ways now to use some of those waste products more efficiently.

A - 238. INTERVIEW 24 (6: 20 - 29): In some of our processes you end up with a fair amount of acetone, but we have a pretty efficient recovery system, we're still designing it now, but funds were approved to reduce those emissions out of the building by at least another 50%, at which point we'll pretty well be at the end of technology, almost closed. We did have a flare for LPO and it did what it was supposed to do but you know it generated a lot of smoke so we put in a new modern flare for LPO that is smokeless. There is no way you can design high pressure processes without a flare stack, because if you have emergency conditions it has to go somewhere.

A - 239. Interview 43 (2: 31 - 36): We have more process analyzers monitoring. We used to have a few major ones for carbon monoxide, of course, in the 60s they didn't even have those. They have more of those monitors now, like for benzene we're putting one in. There's also a few that monitor certain processes.

A - 240. Interview 31 (10: 8 - 11): I am responsible for anything raised at our safety meetings, nine times out of ten it is me. If it is something that I can't solve myself then I will phone up our Safety department, environmental department or the Health department if I have a question about noise levels or stuff like that. There is definitely a whole bunch of resources on the plant site for me to turn to.

A - 241. Interview 31 (10: 15 - 17): Concerns raised at our safety meetings can be brought up to the SHE committee meeting by a SHE committee member. If we bring up an issue at our safety meeting we can ask the SHE member in our building to take to the SHE committee and it will be brought up there.

A - 242. Interview 32 (9: 7 - 10): We shut down our department and have a meeting for an hour, an hour and a half, then we get the resource people to ask anybody we want for information from , you know, the health department or management department.

A - 243. Interview 32 (9: 47 - 48): And the Manager every few months he goes around to all the different shops and has a town hall meeting with them and you can ask anything you want and you get it answered.

A - 244. Interview 43 (4: 5 - 10): C1 was in the news a couple of years ago with something to do with a child's sandbox. It doesn't look good. I think it makes the employees feel a lot better here. There's enough negative people in this world and if you give them something and it seems like they can blow the negative up and don't look at the positive things.

A - 245. Interview 32 (8: 31 - 32): People are treated pretty good out here. Talking as a union person, I can't see too much wrong with the way we are treated here.

A - 246. Interview 33 (4: 31 - 34): Yes, well as a worker here when I get talked to on the outside we try to keep it positive. You don't say there are spills everyday or something happen you don't say the whole City is going to go up. I say well I work here, it is safe, try to keep it as safe as possible. But for the company telling me to go out and talk to these people I haven't been told that.

A - 247. Interview 43 (4: 15 - 16): We're the only ones that are going to promote the plant site.

A - 248. Interview 31 (7: 10 - 16): When I stop and think about it logically, what is the benefit in terms of money to this company for being a good corporate citizen. I don't see the immediate benefits, but I see if you think of it as this is a good place to work, which is important if you want productive employees. So I think that is a benefit. I don't see ... if Celanese was a bad company what would happen, would people be picketing on the highway? I don't know. Other than you get comments from people about "yes C1, those are the guys that are always putting out pollution onto the highway and that". People think about that, people think of chemical plants as big polluters, so maybe by getting involved with the community C1 can just get people to understand that they do better. Maybe change their perceptions.

A - 249. Interview 32 (4: 11 - 12): Yes (they listen to the workers), which they didn't do before. Since they changed the management too. I guess with the Plant Manager they have now that has changed quite a bit of that in the last few years.

A - 250. Interview 32 (4: 22 - 24): I think now they learn from the workers because they are involving us more in their decision making, in some parliament and all that. we get involved in whatever goes on and the ideas. It didn't happen before, you have two classes of people, the working stiffs like me and the management, now it is fairly even.

A - 251. Interview 32 (7: 21 - 30): (Maybe the corporation does too much?) Probably just their trying to enforce it. Like one of our operators might have a little slip and maybe two or three liters of something gets out and there is a big investigation that takes place on account of that. a guy could get suspended or even have a letter of reprimand on his file. That I think is too much because I'm an executive in the Union, so for that I don't think it is justifiable. ... And also this guy from Dallas coming down for every little cut. He flies down out here and it costs a lot of money to fly back and forth.

A - 252. INTERVIEW 8 (17: 3 - 6): I wouldn't want to be complacent and say that we could deal with anything but I think that, but, its been said by other people that we're as good as anywhere in North America. Which is interesting. A lot of people don't know that, and we don't want to make a song and dance, and we hope that we never have to use it, but it's there.

A - 253. INTERVIEW 27 (19: 22 - 27): Money is money. You sit at the bargaining table and hammer it out to death. You'll find a way of resolving it. When you get into environmental and safety, the that's an area where companies and union have to work together and cooperate with each other. It's really a matter of survival.

A - 254. Interview 43 (2: 12 - 17): Oh yes. When it comes to safety and environment there are huge differences. There were times when in the units, you almost had to hold your breath to go in and do something and then get out. That would be back in the 70s. I started going out to the units a lot and I would say about every five years there would be a noticeable improvement.

A - 255. Interview 31 (2: 27): Safety has changed dramatically. The concern and emphasis put on safety has changed dramatically.

A - 256. Interview 31 (4: 41 - 44): Well Dupont is that States, I mean American. PR is a big part of it. I worked at Dow also. I worked at Dow between my years at school and when I came to C1 I was really surprised about this as a much older facility and at Dow it is safety, safety, safety, and here it wasn't. I think they have really brought themselves up to standard here. Definitely.

A - 257. Interview 43 (1: 48 - 51): Total quality management is going to take in safety and the environment. We're consolidating out manuals so that rather than having a manual for our product quality and environment, its all going to be the same.

A - 258. Interview 31 (2: 42 - 44): On this plant site also the environmental concerns have been brought to the forefront. We have a meeting every Monday and every Friday a production meeting on the plant site. Every unit states whether they have had an environmental or a safety incident. These incidents are discussed to help throughout the plant.

A - 259. Interview 31 (2: 31 - 34): When I first same I worked in the fibres unit. I cannot remember attending a safety meeting in the fibres unit as a lab technician. Here in the lab I'm in now, I'm in the PC lab, monthly safety meetings definitely, attending safety meetings in the lab I'm in now take a very pro-active approach to safety, every safety concern brought up must be addressed.

A - 260. Interview 32 (4: 4 - 7): No, this company spends on the environment. One year I know they spent thirteen million. The yards and the units are all clean, by that I mean they aren't full of dust and dirt and other things. Other safety programs are out there. In my group I am Safety Coordinator within my group and we have meetings every two weeks, we bring up safety concerns and how we can improve on things with either safety or environment or anything that concerns us.

A - 261. Interview 44 (2: 36 - 37): The corporation doesn't really differentiate on environment and safety between the States and Canada.

A - 262. Interview 44 (2: 1- 3): Well, this companies always been ahead of regulation. As far as I'm concerned, we've been leaders in looking out for the environment. We've been proactive.

A - 263. INTERVIEW 27 (9: 47 - 10: 6): Well, when that happened, that was interesting, the companies when they did all the right-sizing, downsizing, and re-structuring, then they sort of had to decide what their priorities were in terms of spending what capital there was. This organization said that safety is a sacred cow that isn't going to be compromised because we've been downsizing. Environmental spending is not going to be compromised. So, these things were protected during that period of downsizing. The spending in that area was continuous. The efficiency that were gained by the re-structuring which gained more capital and then more profit as a result of it. That's what this organization did. They protected the safety and environmental spending through those variables.

A - 264. INTERVIEW 24 (5: 6 - 12): And then the other thing is that we'll conduct periodic process safety analysis where we work at worst case scenarios and the effect on the community, and we'll have community awareness and emergency response capability, and waste minimization strategy. Then we'll also do, if past practices have resulted in significant risk to public health or the environment, we will act to reduce or minimize these risks and we'll cooperate with regulatory agencies and other interested groups.

A - 265. INTERVIEW 14 (12:1 - 12: 12): We took that, it went all the way up to the CEO off Celanese ... and we said to him "we're going to do the right thing here" you know, and looking down the pike and where it's all going we should spend the ten million dollars. He came out here for two days, listened to the consultants, listened to us, and in the end, said "it's the right thing to do, I'll go back and speak to the Board of Directors," and we did it. OK. ok. And that was a fairly major issue at that time. That it had gone from four to ten million. The company wasn't tremendously well off, we had a number of problems facing us, not only the debt number. But we did it. And that's what I mean about the culture and the vision and the responsibility. We convinced them that it was the right thing to do for the future.

A - 266. INTERVIEW 14 (8: 24 - 8: 28): But really, it needs more than that too. You can't be the individual example within the industry. That is very relevant. It's like a jig-saw puzzle. There's various bits you bring together, and they all fit together, it's the publics, it's the pride, we know we're doing the right thing, ok, Um, so you get all this input into a corporation and then you say right we are definitely going to improve, ok.

A - 267. Interview 43 (6: 31 - 37): When you start signing your name on things like sample shipments that we send out of our products and we have to package them a certain way for the transportation of dangerous goods, you stop and think when you're signing your name on a piece of paper that says I've done everything possible to ship this safely. There's the possibility now that it can come right back to the person.

A - 268. INTERVIEW 27 (17: 27 - 40): Once in awhile we'll get an employee who does something dumb like not following the proper procedures that we've laid out and the SOPs and he'll take shortcuts or whatever. So, I've gone out there and said: "What you have to realize is that every spill, no matter how large or small, is reported to the regulatory agencies. We have to apply to the regulatory agencies for our license to operate. So every time one of these things happens, we have to answer for it. If we don't get a license to operate, none of us are employed. It's that simple. That's the bottomline." That's the simplest way that I can put it to make someone out there think of how they are doing their job. It's vitally important to us that they do it well and without spills.

A - 269. INTERVIEW 14 (3: 11 - 3: 14) In our company we call it visions of excellence. Where are we going to go with the environment in the long term? And the individual site manager has to then take that broad strategic direction and incorporate some of that with what is going on in his local constituency.

A - 270. INTERVIEW 14 (3: 22 - 3: 35) So what you do, you look at that, and the company's vision of excellence, and then you decide exactly how you're going to get there in terms of your environmental performance. And you then say say, Ok where are your major points or sources what do we do in the river, what's our emissions, what's the government attaining for, and then you look for continuous improvement. And certainly for us that's how it has been initiated. And on top of that, of course, every facility manager has particular concerns that probably weigh more heavily on him than others. And again, you get back to each individual manager looking at his own particular situation. In our own particular case we're more concerned at this point in time with the air emissions for obvious reasons, heh heh, we're sitting right next to Clairview, and uh obviously with water, because we do have two deep wells here. We are probably the major deep well user in this area. In fact I know we're the major deep well user, in terms of volume.

A - 271. INTERVIEW 24 (12: 1 - 6): The main thing that happened in some of these other plants, and not all of them, it depended on the individuals, the ones in the US have much more problems, and its been because a lot of them are being trained for other jobs, and if you come into a job and you figure you're in the quick career path, you try to do something that is noticeable in two years, and one of the few things you can do is the bottomline, and then you move on. So you aren't going to be interested in ten years. Or even a five year plan.

A - 272. INTERVIEW 24 (11: 29 - 42): Well, the individuals I guess are looking ahead a little more. Depending on the people, (they're) more socially conscious. I wouldn't call it that really, just looking further ahead. We're in sort of a unique situation too, we've probably been granted more autonomy ... this facility compared to the other has had much more long term leadership. We don't rotate people every two years and a lot of the other plants do. The plant managers go in and out every two years, and it used to be like that here too, it used to be you'd change plant managers more often than you changed your socks. And ... the people that report end up being replaced too. You see what happens here is that not too many people want to come into Canada, you look at the pool, and there are more of us going into the States and that now but again not too many. It is not considered a plum job leading to promotion, and further promotion and all that, and because of that we've had much more stable leadership over the years than the others. So we've been able to plan much further ahead and push our plan. It is all right to have a plan, to have a ten year plan, but if you're only there for two years then guess what?

A - 273. INTERVIEW 24 (3: 15 - 20): In any case, the basic driving force was the realization that environmental concerns, health and safety concerns were rapidly going to be running the business, and at this stage, like in the US where what they have in their environmental reengineering which is basically looking at all environmental aspects of safety and everything else, and making decisions as to what the business is that we'll operate, or what businesses will be shut down based on their record and where they're at, and looking at future upcoming regulations and doing it.

A - 274. INTERVIEW 14 (10: 6 - 10): I think you then have to go and look at the company culture, ok and if the company culture driven by the CEO is one of continuous improvement and being a responsible person in the community for their emissions then I think they'd be fine. And of course there is the government regulators and the licensing etc etc etc.

A - 275. INTERVIEW 27 (8: 23 - 40): ... Ernie Drew, as an example, the CEO for North America and Asia ... set a goal of about 450 or 500 million dollars for five years on environmental spending. ... There were a lot of people that were very skeptical. ... it sort of really told the organization how serious they were about environmental issues. That sends a signal all the way through the organization.

A - 276. INTERVIEW 14 (2: 36 - 3: 9): Well, I think why, it very much gets back to the individual cultures of the individual companies. So what you really get back to, it starts right at the top I think at most major companies. In the little reading that I have done in that area, it's clear that the initiatives I think, in the major drive of things, ie in the broad spectrum, starts at the top with the CEO and his staff and the decision that they are going to become a responsible citizen. And the CCPA's Responsible Code, I think, defines it very well. And if you look at Monsanto and ourselves and Dow in the US, these people who have come out and said "Look we're going to be environmentally friendly, and that doesn't mean that we're going to be able to do everything under the sun to keep everybody happy, but it does mean that we're going to, over a period of time, significantly improve our operations in terms of the environment and the way we interact, not only with the communities, but also with government regulators etc etc etc. So I think, certainly the initial um um thrust comes right from the very top of the company.

A - 277. Interview 42 (13: 37 - 42): To recover the water and use it on the plant site is an alternative method. I tend to think that if we're heading down that road and have made that type of commitment and spent that much capital, our intention is to be a viable facility for the next 20 years.

A - 278. INTERVIEW 27 (9: 10 - 9: 14): If we're going to be in business, we've got to be a company that's concerned about environment and we've got to put the money up to make sure that we're to be around for another 40 years.

A - 279. INTERVIEW 8 (13: 26 - 32): I have a very supportive management. And a lot of that has to come from Ian. I have to give him total credit. Because the plant manager, ten years ago the plant manager's job was easy, to make money, but now its a case of what is happening out there that is going to affect the business. And he spends as much time as I do looking out there. At a different level. And I guess he lets me do now a lot of what ten years ago the plant manager would have done. In a lot of facilities it is the very senior management that is doing what I'm doing. Its just the way we run it here.

A - 280. INTERVIEW 14 (6: 2- 6: 7): ...we want to be an upright citizen, we want to be viewed as someone who does a top-class job. We want to be seen as someone who contribute to society. We don't want people walking around saying "Oh God Celanese Canada they are the folks out there ..." There is pride. There should be. If you believe that every individual wants to do a top class job, then that is now part of a top class job for someone in our industry.

A - 281. Interview 31 (9: 49): They (value statements) are posted. And we have the Safety Healthand Environment Manuals and the monthly meetings.

A - 282. INTERVIEW 24 (12: 27 - 35): In about that period too the corporation began ... to see that environmental compliance and that was required. They ended up coming up with our Blue Book, and basically what it was policies of how we would be, you know, stating our commitment. ... It starts out "These are our policies, approved by the Board, and recognize a special responsibility, and we expect everyone who receives this book to read it carefully, and failure to follow the policies will be cause for disciplinary actions or termination of employment.

A - 283. INTERVIEW 27 (9: 4 - 9: 10): Health and safety is number one over production in this organization. Nothing is done without safety being first and foremost. And that's a big change, because previously production was always number one. That's where you're going to get your money. Now, the thinking is more long term and we want to be in business for the long haul.

A - 284. INTERVIEW 8 (25: 17 - 21): Well, that was our control order. We had clay lined ponds that were leaking. They were put in, we had done absolutely nothing wrong. We followed the regulations and they are not acceptable now. But that was our responsibility. you know. We didn't argue, we said yeah fine. Life's not fair. You've got to do it to modern day standards. That what society demands.

A - 285. INTERVIEW 27 (7: 39 - 48): But sometimes you will find that even the core principles or direction that we set in our organization still may be just about the legislative possession because we think that's where we should be anyway. Many times we try to be proactive. Or, you know that you can see things developing or coming in legislation long before they are ever written into law. So, you can sit down as an organization and say: "If we don't do this anyway, sooner or later, legislation is going to be in place and demand that we do it. So, let's do it."

A - 286. Interview 33 (6: 4 - 7): (Pressures from workers or from management?)I think a lot of it maybe half and half. I mean we work here too, you want to make the environment safe. From that point if we have a leak you fix it right away. Or if there is some problems some of the process would be to get it changed so it makes our job easier and safer. Again from the other end they might have something wrong, a bigger event like an emission problem and the government regulations might not correct it.

A - 287. Interview 32 (4: 49 - 5:3): Yes, things are ok. About once a year we have these safety audits where people go around checking things out, like in the maintenance group I belong to every month there is different people, one of our peers that goes around through every unit, they have a check list and they check everything out and see that every one is in order safety wise and also environmentally wise.

A - 288. INTERVIEW 14 (9: 38 - 41): Oh yeah, the CCPA and it's starting this year, we all should have by this time passed the six codes of Responsible Care, and the CCPA is saying ok you've now all filled in the little tick boxes, now we're going to find out how good you really are. And we're going to send in audit teams, including an independent.

A - 289. Interview 42 (10: 43 - 50): If communication with the public and those types of things are taking higher and higher profile, our vision of excellence for the company states that RC is part of our vision of excellence. If RC requires that you are working well with your community and you have a good interaction with them, that's a part of RC. It's not just the business side.

A - 290. INTERVIEW 24 (6: 17 - 20): ... and so then we've been, we started out last year with a report card on environmental performance ... and we're putting out another one this year, and we go back to 1988....

A - 291. INTERVIEW 8 (4: 18 - 31): There is a certain level of safety that we have on the plant site, and that is a judgement call. You're absolutely right, The only way you can run this plant safely is to shut it down, completely and utterly safe. And, I guess we get into the business of risk management. I mean, running a chemical operation on a daily basis is risk management. We judge the factors and do it on judgement, and the one thing, we tend to classify it into two different categories. What sort of things can happen on the plant site that can affect our employees? Then there are the ones that could impact the environment, the community. And what we've said here. We can do all sorts of design work, all sorts of engineering work, we can minimize that. What we've said is, we don't know what the probability is, we're not going to talk you about probability numbers, because it doesn't mean anything. You're dealing with a very emotive subject. If you say that it is one in a million years, but if that happens to be the year that it happens, or you say "well, we might kill one person in a million every ten years" well if that happens to be your kid that you just killed, well its pretty emotive.

A - 292. INTERVIEW 8 (4: 31 - 35): So all we can do is say, you know, if we do something that is going to impact you this is the plan we have to mitigate it. We took the view that it can happen, and we plan for it, and let people make their own mind up if the risk is acceptable. Because you can't trade risk factors. The biggest thing is that you've got to let people make their own minds up.

A - 293. INTERVIEW 27 (3: 32 - 35): So, we're not going to individually or collectively in the plant sort of put ourselves at risk or the population by what we produce. We're very conscious from both the environmental aspect and also from a health and safety aspect.

A - 294. INTERVIEW 27 (10: 14 - 23): I think the decision was made at that time that: Hey, if we're going to be in business in the 90s, for the long term, we've got to do it. The realization was there, going through that in the early 80s that if you want to be a quality company for the future, the 90s, then you've got to be environmentally correct. We've got to do it well and we can't continue to do some of those things that we did years ago. We're going to have to continue to spend money and effort in those areas and improve our product, turn out a quality product in a safe and environmental way.

A - 295. INTERVIEW 14 (12: 18 - 22): Where do you want to be another five ten fifteen years from now. But that's vision. That's looking out and saying we are going to be there, and what do we have to do to ensure that. Not only do we need regulation, that in five years we're ahead of the game and that we're being proactive, and we're doing the right things for the future. That has to be culture and vision.

A - 296. INTERVIEW 8 (3: 33 - 34): We celebrated our fortieth anniversary on the site here last year, so we are 41 years old, and we want to be here another forty years. I hope so, I have a pension to come out of it somewhere, heh heh. But essentially, that's our philosophy, we've been here forty years and we want to be here another forty, and it kind of colors how you do things.

A - 297. Interview 31 (9: 34 - 35): You want to stay in your budget. You want to be a little bit ahead for tomorrow because you don't know what tomorrow is going to bring.

A - 298. Interview 42 (3: 29 - 37): So, the philosophy in the past was that we needed more storage. The opportunity that was presented there was that if we do that we're going to have to meet new requirements. You can ask the question: Why do you need more storage? The answer, because I need to keep the process going. And then you've avoided the thing that is stopping the process, which is the tower that's plugging up and maybe capital is better spent fine tuning the control system or putting in an extra tower so that you can bypass it and therefore avoid the environmental issues altogether.

A - 299. INTERVIEW 27 (3: 14-19): So, we think that we've got a good quality program in place. We try to treat people well and within that value system. So, it's something that is growing. It's continuous improvement. You just can't say that we've got a quality program: There it is. It's on the wall. It's really something that's growing all of the time.

A - 300. INTERVIEW 27 (7: 21 - 39): What we look at, because we're a branch client within our organization, we look at where they are in the States. We look at that fairly closely. We see some of the legislation that's happening in both environment and safety in the States and then, as an organization ... the best example I could give you would be on safety legislation. For years I've always felt that Canada was ahead of the States in most health and safety legislation. There's been a real push in the States in recent years where I've seen indications where the States are now moving so quickly on health and safety legislation that they might even be ahead of Canada. As an organization, what we do is look at both legislative things that are happening on both sides of the border and then we develop what we call our corporate principles on health and safety for our organization for certain things. So, we went beyond the legislation in our core principles in both sets of legislation in the United States and Canada. As a quality organization looking for excellence, that's where we should be.

A - 301. INTERVIEW 14 (8: 1 - 3): Boom. Clean it. And that's what I mean by being pro-active. It's (sealed asbestos insulation) not causing any harm at the present moment to anyone, but inevitably longer term you may as well bit the bullet and get on with it.

A - 302. Interview 43 (9: 20 - 23): The cradle to grave phrase comes to mind. When we started out with emergency response we were only going to provide assistance to CCPA members, but the minute C1 arrived (at an incident site), the government teams backed off.

A - 303. INTERVIEW 24 (10: 44 - 11: 4): Now all of a sudden, the requirements of the Texas Air Board require them ... this is no longer good enough, they thought they were out in the boonies and there was no one around, the town of Bishop is close by but it is only employees that live there, now they have to do something, and they have to do something for water treatment, well all of a sudden they're looking at a bill for that particular process alone that is totalling 35 to 50 million dollars. To bring it into compliance. And basically the senior management of the company are saying that the profits from that product do not justify the expenditure.

A - 304. Interview 42 (6: 14 - 18): This would be a comment about C1. Our argument is that we feel that RC, although it has codes of practice and lays out things, is really an ethic. An ethic is just incorporated in what you do.

A - 305. Interview 42 (5: 51 - 6: 5): I think so, but I think they help in terms of giving some direction. Although, what we've done is take Responsible Care and incorporate them into our operating practices directly. But, our operating practices don't say: This is the operating practice regarding distribution in line with the Responsible Care guidelines. There's just one set of guidelines that meet the needs of RC and a lot of other protocols that we have to meet as well.

A - 306. Interview 42 (7: 12 - 16): But there's the understanding that we'll always be speaking into a vacuum, so we're never going to convince everybody. It is a voluntary issue and you're not going to get everyone to go along with everyone of your ethics.

A - 307. INTERVIEW 8 (18: 38 - 19: 9): I would suspect that the membership fee is not the issue. It's the cost of coming up to meet those codes, if you want my opinion. You see, the membership in the CCPA is a significant dollar value. But it's the cost, there is a lot of cost involved in going beyond the regulation. There is a dollar value there. We think it's worth it. Obviously, because that is why we're doing it. I forget what the membership fee is, it's on a sliding scale, but essentially I think that being a CCPA member costs this plant site about a million bucks a year. With my time, other peoples time.

A - 308. INTERVIEW 14 (4: 28 - 4: 36): And nor are we lily white in Industry, don't misunderstand me. I'm not projecting that we are cleaner than clean. What I am saying is that we have made significant improvements over the years as an Industry. And there is no doubt about that. I'm not sure that we're given a lot a credit for that. I'm not sure that we blow our own horn very well either. We're always concerned with, somebody coming up and saying, well you've still got XYZ. But there is no doubt in my mind that the average person in the Industry today is much more concerned that he was say twenty years ago. I think that the concern has grown almost in a straight line over that period of time.

A - 309. INTERVIEW 8 (25: 26 - 26: 4): No. I think society is going to start making some choices. You can bash industry as hard as you like. I look at one specific instance around here, when we published our emission data last year, our environmental report card, the CCPA did it a year ahead which was a voluntary one. I'm just doing this years report card now. And it's going to be interesting with some of the other industries being forced into doing it. We emit thirty tons a year of benzene to the air, and people say 'Oh my God' but you know how much the car exhausts put out in Edmonton? Three hundred tons a year. So you could shut us down and you'd make a ten percent reduction. So that's the same with the North Saskatchewan River Monitoring study. If you look very closely at it we're a very large water user. We put eleven hundred tons of water an hour back into the river. Vast polluter. Our loading on the river is five percent of the Gold Bar Water Treatment plant. So you shut us down and we go off the river at who knows how many millions of dollars of cost and there is still 95% of the crap going into the river. So to me, Industry is being a bad performer there's no question, we've been arrogant and we've turned round and done what we wanted in the past as an industry group. Now we're wising up and most of us have got graphs and charts to show that performance has improved and all that bullshit, no problem, but there comes a point when society has to be told "excuse me, you've caned us as hard as you can, law of diminishing returns, look where we are in the overall performance of things." Society has to make some hard choices. I include myself as part of that society.

A - 310. INTERVIEW 24 (20: 23 - 39): Well I think too a lot of people are beginning to see that the next step of environmental improvement is going to have to come out of their own pocket, their own standard of living and all that. And they aren't ready to go any further. The same with the CO2, I tell people, I said, the improvement in housing efficiencies that we have done for insulation and all that have been more than offset by the increased size of houses. Heh heh, it's crazy. But the thing is if you're going to be serious about CO2 emission then you're going to have to burn twice as much gas to heat twice as much space and you're emitting twice as much CO2 to keep that house warm, and your car is twice as big and burns twice as much gas. You look right now in our parking lot, most off the vehicles are half tons, older vans, and everything else, the biggest gas guzzling diesels around, and you see very few fuel efficient cars here. And you can say that this is the microcosm of Alberta here, because we have 750 employees here and they are no different from everyone else. But you go down to the parking lot and there are four wheel drives galore, and all that, all highly fuel inefficient vehicles. The people, you tell them, if you're serious about CO2 and I talk to people all the time, well drive smaller cars, get rid of the truck and the van, and motor homes, and drive a small car, and you're going to have to get a house half the size and then maybe we'll be able to start improving, and they say "No way". And obviously they are not going to vote for people who propose this sort of thing.

A - 311. Interview 43 (7: 40 - 48): We've done the 96%, we're just working on the last 4%. With my involvement with ISO 9000, the next one is ISO 14000 which is the environmental one. When that standard comes out, what will happen to Brazil, Mexico and China? Will the consumer be able to put enough pressure on these companies to meet these standards? If they have to meet them, then the global economy is going to be a completely different picture. After I came back from China, I seriously hope something will come of that.

A - 312. Interview 43 (8: 17 - 20): I don't know. They're shutting down plants in North America and opening them up in Mexico. Our plant's safety record in Mexico is pretty poor, to the point where there's deaths.

A - 313. Interview 43 (8: 25 - 31): I was impressed with C1 in China because they tried to demand North American standards of those workers. It didn't work because they had no idea about safety glasses or anything. When it was your time to be hurt, it's your time. So, it's immaterial if you're wearing a harness when you're fifty feet up in the air or whatever. I saw people welding without any protection.

A - 314. Interview 43 (7: 28 - 32): Probably a little bit (influenced by friends). To be truthful, I've had a real change of heart due to spending six months in China last year. When you see that happens to the environment when you have so many people that are doing nothing and there's no controls, you change your mind.

APPENDIX B

SELECTED DATA QUOTATIONS - FIRM B

B -1. Interview 35 (9: 14 - 15): I think they are still driven mostly by public perception and regulation.

B - 2. INTERVIEW 29 (6: 45-54): (What to do with sludge left over from closed-loop system?) I guess that would depend on what it is. I'm not sure what they do with that. It's either secure land fill, it can be incinerated. We have some deep-well disposal, but it's pretty limited. What does into the deep-well is fairly well controlled. I don't know. The technology, if we were to have a Swan Hills here on site, that's another thing. ... People are so afraid.

B - 3. INTERVIEW 29 (12: 40 - 42): I really wish I had the answers. I think Industry has to continue doing what it's doing. It has to continue being seen doing the right things.

B - 4. Interview 35 (13: 49 - 14: 4): Well, we had a number of complaints about the start up of the hydro project. Just the neighbors that live around here. They have a big flare which if something goes down they vent the stuff to the flare. It's always noisy at start-up. So, the neighbors are all phoning. The scrambling from the superintendents is when these public complaints start coming because then it becomes public and the newspaper gets a hold of it. It's terrible. There's no regulation on the flare. Alberta government couldn't care less.

B - 5. INTERVIEW 4A (5: 28 - 32): We had some local home owners who were not entirely happy with the situation (the expansion) and we worked with them sensibly and in one case we actually bought three homes and relocated the people. And we felt that we had to because they had been here long before we were. We couldn't really argue in that case.

B - 6. INTERVIEW 4A (5: 1 - 7): We do a lot of things out in the community in terms of communication. We have a community newsletter. We've just changed it, we now do what is called an advertorial. We take out a two page insert in the weekly newspapers. We felt that our newsletter going out separately was being read as junk mail, or wasn't being read so we're looking for new ways to communicate with the community. I'm still not entirely satisfied. I think you always have to be on top of the people and be innovative.

B - 7. INTERVIEW 9 (4: 20 - 31): We have a couple of activities that we do, proactively, to make sure that we get public input. And one of them is the community advisory panel. And we have, it's in it's third year now, and we have from twelve to fourteen community leaders, non-politician types, and they meet very three months with our public affairs manager, and one of the site's major managers. In this case, the guy that has taken it over lives in Ft. Saskatchewan so he's there with, in some cases, his neighbors. And we ask them what the issues are in their view, and we communicate what our understanding is of those and what we're doing about it. And we try, in fact, we have to prove to them that we are responding to their needs and their concerns. It's better than waiting for people to tell us. We go out at least in this forum and ask. That has been really valuable. And the make-up of that team, I mean it is all the way from a High school student to a Senior citizen, a businessperson, an educator, and it's quite a mixture.

B - 8. INTERVIEW 4B (11: 36 - 38): (Environmental concern has been a concern for how long?) Ten or fifteen years. And the communication part of the environmental part has been much more recent. Seven or eight years.

B - 9. INTERVIEW 4A (3: 9 - 16): Yeah that's right. And it really made Chemical companies sit up and take notice around the world. And what happened was that the CCPA in Canada said "how are we as members, representing 90% of the companies in product manufacturing out there in Canada, how are we going to insure that that kind of accident does not occur in Canada. Because no one, I think, was smug enough to say that it could never happen here granted, I mean there are certain things like re-development things like that you don't have people living right next to your fenceline. But, nonetheless, you could have a major incident and what happened out of that was that Responsible Care was developed.

B - 10. INTERVIEW 4A (5: 11 - 13):It used to be in the good old days in my field that you were involved first of all when there was a real problem "Now we want you to help us with this mess, can you deal with this issue" .

B - 11. Interview 35 (13: 49 - 14: 4): Well, we had a number of complaints about the start up of the hydro project. Just the neighbors that live around here. They have a big flare which if something goes down they vent the stuff to the flare. It's always noisy at start-up. So, the neighbors are all phoning. The scrambling from the superintendents is when these public complaints start coming because then it becomes public and the newspaper gets a hold of it. It's terrible. There's no regulation on the flare. Alberta government couldn't care less.

B - 12. INTERVIEW 4A (6: 23 - 32): Yes. Or these are some of the challenges that we still have but we don't have any solutions yet, technical solutions. We've also started these, one of our major issues, you mentioned with Greenpeace. We've always been looked at by certain environmental groups, and I think we always will be, as suspicious. Chlorine is a major issue right now. Greenpeace has targeted chlorine as a chemical they want totally eliminated, and we're a major manufacturer for it. So that gives us a challenge and uh we've, in Sarnia particularly, we've invited Greenpeace in to talk and things like that. And that's an ongoing dialogue. I don't know if we can ever say that we're 100% happy with it but you sort of have to keep the doors open and continually try to talk to see if you can solve it

B - 13. INTERVIEW 29 (7: 34 - 42): We don't really get hassled. There is potential, and we're aware of what's going on, but in terms of hassle, we try to cooperate. If people show up and want to see something, as long as they're doing it the right way, we'll cooperate. ...Whether it be media or special interest groups, we're open to talking. Public relations people try and develop relations with the media so that we tell them when things are happening.

B - 14. INTERVIEW 4A (6: 23 - 32): Yes. Or these are some of the challenges that we still have but we don't have any solutions yet, technical solutions. We've also started these, one of our major issues, you mentioned with Greenpeace. We've always been looked at by certain environmental groups, and I think we always will be, as suspicious. Chlorine is a major issue right now. Greenpeace has targeted chlorine as a chemical they want totally eliminated, and we're a major manufacturer for it. So that gives us a challenge and uh we've, in Sarnia particularly, we've invited Greenpeace in to talk and things like that. And that's an ongoing dialogue. I don't know if we can ever say that we're 100% happy with it but you sort of have to keep the doors open and continually try to talk to see if you can solve it

B - 15. Interview 35 (4: 17 - 21): Well, the public perception is worth a lot of money too. If you work within Firm B you see a lot of that. Public perception is sometimes more important than what's really going on. If it looks bad, the company would do anything to avoid it.

B - 16. Interview 35 (13: 42 - 44): We are the public and it's our perception and that's the way it is. I know FIRM B would hate to have front page news "Firm B's dumping such and such."

B - 17. Interview 35 (9: 44 - 47): You look at what's happening and that's the way everything goes. There's environmental groups and there's the company and it's all kind of like a big circle where they're all pushing all around.

B - 18. Interview 35 (7: 26 - 29): Well, firm B is basically about people. So it goes back to the whole thing of public perception because everything drives what the company does. I don't think there's a company in the world that is not based on that.

B - 19. INTERVIEW 29 (10: 6 - 18): If I was ever prosecuted or taken to court, it would probably mean that someone in our organization didn't do what the organization told them to do in the first place. Or maybe it was just a technicality. Now, you can get into situations where you're doing everything that you possibly can and you have a hiccup and you get fined. Well, that just gives everybody a lot of bad press, for one. Economically, it probably doesn't have a major impact, directly. Indirectly it can. And, it may or may not have been something that at the time really justified that kind of exposure.

B - 20. INTERVIEW 29 (13: 23 - 27): I personally think that Industry sets a very high standard and lives to that standard, and that will help them in the future to be able to expand. In my mind there is no question that we're going to expand this site.

B - 21. Interview 34 (10: 11 - 17): If it wasn't for these plants the Fort wouldn't be anything. That's what people seen to forget. Firm B paid over a million in property taxes or two million for all the land they own. All that money goes in their (the community's) pockets. Firm B might even have to pay some extra money for property and machinery tax. They're really nailing these guys here. The property tax they can't get away from.

B - 22. Interview 34 (9: 51 - 52): They (the government regulators) go after the fat cats. They're like sitting ducks.

B - 23. Interview 36 (8: 7 - 9): It's the government. They are picking on them (automobile makers) just like they're picking on you to get rid of your wispy leak. Everybody's getting picked on.

B - 24. INTERVIEW 28 (9: 7 - 9): As a matter of fact, because of the licence clause, the most recent one that Alberta Environment has asked all industry to submit a proposal to have zero contaminant discharge, in everybody's licence.

B - 25. INTERVIEW 4A (5: 18 - 22):So I was involved in the very beginning, and we talked ok what do we want to do with the community, do we need to do an environmental impact assessment so public consultation was extremely important and right away I was asked to chair a team with senior management on it. How are we going to do the public consultation process effectively?

B - 26. INTERVIEW 4A (5: 25 - 28):We had Round Table discussions with the communities, we did ten of those, we had public meetings, we had a series of public meetings over several nights, we had tours of our site, we had displays and invited folks in.

B - 27. INTERVIEW 4A (21: 31 - 35): I have never heard anyone say that they were concerned about being shut down. For that to happen on this site it would have to be something really catastrophic. And I can't think of any firm B site, and that's about 134 in the world, where that has ever happened as such. They shut down plants because their products are no longer needed or whatever but that has never happened (being closed by government).

B - 28. INTERVIEW 29 (10: 6 - 18): If I was ever prosecuted or taken to court, it would probably mean that someone in our organization didn't do what the organization told them to do in the first place. Or maybe it was just a technicality. Now, you can get into situations where you're doing everything that you possibly can and you have a hiccup and you get fined. Well, that just gives everybody a lot of bad press, for one. Economically, it probably doesn't have a major impact, directly. Indirectly it can. And, it may or may not have been something that at the time really justified that kind of exposure.

B - 29. INTERVIEW 4A (6: 23 - 32): Yes. Or these are some of the challenges that we still have but we don't have any solutions yet, technical solutions. We've also started these, one of our major issues, you mentioned with Greenpeace. We've always been looked at by certain environmental groups, and I think we always will be, as suspicious. Chlorine is a major issue right now. Greenpeace has targeted chlorine as a chemical they want totally eliminated, and we're a major manufacturer for it. So that gives us a challenge and uh we've, in Sarnia particularly, we've invited Greenpeace in to talk and things like that. And that's an ongoing dialogue. I don't know if we can ever say that we're 100% happy with it but you sort of have to keep the doors open and continually try to talk to see if you can solve it

B - 30. INTERVIEW 29 (10: 23 - 32): You can get a smaller company that's chrome-plating down and they're dumping chromium or something down the sewer system and they continue to do it. Now, those guys should be thrown in jail. The problem often is that big guy is easy to go after. I live out in Sherwood Park and I watch people building homes and I watch guys climbing around the structure and breaking every possible rule in the book. We would never get away with that, first of all. We don't allow it, secondly.

B - 31. Interview 35 (2: 24 - 28): It seems to be fairly consistent. There's always new regulations coming out. It seems like everything's tightening up, but that's more from the government forcing the companies to do it as opposed to the companies changing something.

B - 32. Interview 34 (3: 49 - 54): I'd say the government has really clamped down with the regulation. There's all these environment community days that have gone on for years, but nobody's really paid attention to them. All of a sudden, some group got together and spoke in a loud enough tone that we've got to protect the environment and everybody is agreeing. It's like a bandwagon.

B - 33. Interview 35 (5: 23 - 28): (Beat the compulsion of future regulation?)

Sure, the fugitive emissions program right here on the site now, that's something that is going to be regulated. It's coming in 1996. It's things that are leaking. A stack is considered a licensed emission, but if you install a valve and after a while it starts to leak that's a fugitive emission.

B - 34. INTERVIEW 28 (2: 17 - 28): So with a site of this nature you can tell from a government permit and licence testing point of view that automatically we have a lot of testing to do in terms of quality of air, the stacks. We have a landfill in there, so things that go in have to be tested. We have one in-take from the river. All these things needs to be tested. All the ponds to keep the storage, are tested before they are allowed to discharge. That group (monitoring) that does this type of routine work. So basically we put them all in operations and from an environmental angle because we have ten world scale plants here and all of them will have different environmental activities, which require permitting. At times they have environmental incidents in accordance with the new government guidelines. So our guys are involved with helping them with elevations for investigations, stuff like that. That would be very similar with this type of set up for each of them will be responsible for a few plants. Similar set up for this department in safety. They have some safety specialists to do that type of role, like safety specialists.

B - 35. INTERVIEW 4B (13: 21 - 22): In a lot of cases, there is a prescription for how to like in some cases, what equipment to use, in others what analysis to use, and then of course it gets very expensive to comply with that. Even each point source for an emissions you might have on the site.

B - 36. INTERVIEW 9 (8: 25 - 41): (How to keep track of what government is up to?) Well, we have a couple of mechanisms. Most of them are pretty straightforward. We're on mailing lists. I'm on mailing lists for all of the government's public plans and information, three year plans, and the water resources policy changes, anything about the emissions control, anything to do with comparing our regulations to national regulations, so I have to scan that, you know, really quick, and look for things that will impact our organization or our community. When I recognize something that we need to get input on, then I take that back to the proper person in our organization. And they'll work on it. Likewise, the environmental people in our company they have information, they're on the mailing lists for government things, and they will often take action on their own. The role that I have applies to other areas aside from environment. Like property tax assessment, education initiatives, municipal affairs, so you have to know when to respond and when not to because you could spend all your time chasing things that may not have that big an impact. We also have other people that we meet with the government on regular basis close to specific issues. And from time to time at these meetings you'll learn something else that may be planned. It's the same way that we keep the government informed about what our plans are.

B - 37. INTERVIEW 4A (14: 10 - 14): Off the river is one, perhaps (cost without benefit for good environmental behavior). Perhaps. Another one we hope to have in place is our power and utilities plan. We have a program right now, the numbers are rough, but about a ten million dollar emission reduction program on our nitrogen oxide. And there is no return for us, its just that we shouldn't be emitting it. It has an impact on the environment.

B - 38. Interview 35 (2: 41 - 46): Well, actually it has changed a little bit in the last year. Firm B has moved from each site being independent to having business teams that run the company. They've gone from whatever they were doing, to a more business orientation. If it doesn't make money, it's not good business.

B - 39. Interview 35 (8: 28 - 40): Well, the new plant is closed-loop, but the existing site is not. So, you're getting things like cooling water and there's one plant which used water in the process which is then dumped out into the river again. That's the majority of the water that's going to the river. I'd like to see it where it's clean. Like you could drink it, but it's not. If they were to clean it up more than it was now, it would cost more money. Your cost rises and you become less competitive. You know, I'm a consumer too. When ethylene glycol costs more from firm B than from where they can buy from somewhere in the US and they can ship it up here, which one do you buy? You buy the cheaper. You know it yourself.

B - 40. INTERVIEW 29 (11: 49 - 12: 2): I think you'll probably find a number of corporations that do that and it's not just the chemical industry (spend to go beyond regulation). I think you'll find that in many. From our perspective, it's a matter of survival. You have to be setting a trend. You have to be out front. You have to be doing some of that stuff. If you don't, you'll just, from a competitive point of view, get left behind and also eventually you'll just be bogged down by litigation.

B - 41. Interview 36 (4: 31 - 34): That was part of the campaign (more product and less waste). If you read the literature about the vinyl plant expansion it says about how we'll be making more, but producing less waste than we are right now. And society likes to hear that. And so do we.

B - 42. Interview 35 (12: 16 - 23): That's why I say it's not going to change until we as people change. I've seen it many times when you say to your boss, who are little guys in terms of the whole company. The company is still driven by production, no matter what you'd like to think because production units make the money, they spend the money. We're a service group. We provide the service to this production unit.

B - 43. Interview 35 (3: 50 - 53): They're expanding this site. So, if it wasn't attractive ... like the hydro project, they would have said they weren't building it here.

B - 44. INTERVIEW 4B (11: 24 - 30): I mean, if you don't have incidents and you don't have chemical spills and you don't pollute then your costs are lower, your people are happier, the communities of course are much happier, and the government starts to trust you more when you go to work with them on what should the regulation be then you have a much better chance of having a reasonable approach, to regulatory affairs. Its so much connected to that safety analogy that people can sort of relate to it. But on a broader scale.

B - 45. INTERVIEW 28 (13: 38 - 44): The latest trend, the industry trend, people start to realize the conclusion that there are a lot of them (firms) that can't do anything (more about the environment) without it costing a lot of money. You have to accept the fact. Right?

B - 46. INTERVIEW 28 (16: 5 - 12): (Influence of bankers?) In the US it may be more than it is here. ... We had a group of bankers that came up here less than a year ago, and I had to go and explain to them our environmental management system, had to satisfy them in terms of what environmental impact assessment we have done, the permits we have obtained and the conditions that we have and the protection system that we have to assure them that we are here to protect the environment so that their liability will not increase.

B - 47. INTERVIEW 29 (14: 14 - 16): (Re: bankers) It's amazing what they want to know these days. They want to see soil samples. What are we inheriting here?

B - 48. INTERVIEW 28 (16: 25 - 26): So in that case from their angle they are looking for liability and it certainly will impact on everybody who needs a loan, which everybody does.

B - 49. Interview 34 (10: 4 - 6): Like you think of Pittsburgh with all the stacks and pollution and haze and that's peoples perception of what every chemical plant is like.

B - 50. INTERVIEW 28 (12: 6 - 8): Look at it this way, put ourselves into perspective in terms of all the industrial activities that did have pollution in the past. We can see it in the ground. There is Love Canal. It's all over the place.

B - 51. INTERVIEW 28 (12: 12 - 15): Bhophal. All those are history. Any industrial site you see, any land in use, are going to tell you you can't use it agricultural activities anymore. You are going to have a tough time using it because of all the spills, all kinds of industrial activities. Nobody is fool proof, it's not perfect.

B - 52. Interview 35 (11: 21 - 29): But the companies are made of individuals. When the superintendents of these plants are sitting there saying "we can't do this. It isn't right. Sure, we have to make money, but we also have to make sure that we're keeping the air and water clean." I see that more and more as the younger people come in, it is changing. When I listen to the kids in schools, it's changed a lot. It still hasn't changed enough though, because we're still a consumer society.

B - 53. INTERVIEW 29 (9: 51 - 10: 6): Well, prosecution is one thing, but certainly from our point of view, I really don't think that prosecution is the thing that keeps you honest. ... From our point of view, it comes right back to what you're told you have to do from a corporate point of view. Be honest. Be ethical. Do what you have to do. Comply with the laws. Once you've been told that's what you're going to do, then that's your job to do that.

B - 54. Interview 36 (7: 11 - 13): I sort of feel like they've (management) been committed to it all along and as money and technology become available, they've applied it.

B - 55. INTERVIEW 29 (13: 13: 31 - 46): This site is in a prime location . .... That means that when the decisions are made to invest more money, where are they going to invest it? Well, it might be on the Gulf Coast, or Fort Saskatchewan, or in Europe or where ever. But, Fort Saskatchewan is right up there on the list. So, clearly, we need to have this environment that is conducive to our corporation investing in us. In a way, we're in a little bit of competition with ourselves to make sure we are the best.

B - 56. INTERVIEW 28 (9: 14 - 21): ... actually within a short time everybody will have that zero pollutant discharge proposal and all the members of the CCPA will blame it on us, because everybody is telling the government it is not possible, you can't do that. Here comes firm B Chemical with zero discharge into the river from the new plant. I have people calling me in the field for a long time saying "How the hell do you guys do it? We looked at it once, it is not feasible and it is expensive". And this is more expensive. We had a hard time selling it to our corporate office who basically controls the dollars, but we managed to convince them.

B - 57. Interview 34 (9: 23 - 24): (PR and openness?) Yeah. You could call it a gimmick. Dow's had a bad name since the Vietnam war with agent orange.

B - 58. Interview 34 (9: 28 - 35): They've been ridiculed (firm B). I was watching a Robin Williams tape and he started talking about a six foot, 400 pound, two headed fish that came out of the water and says "I want to speak with anyone from Dow Chemical. I watched it with a bunch of friends, and I thought it was funny because I was thinking of Sarnia. People have their own perception. Some people see that and think Dow here, some Dow Sarnia, some Dow Louisiana, or Dow Texas.

B - 59. INTERVIEW 4A (2: 32 - 38): You mentioned about eight years ago, whenever, and it was eight years ago, I think what happened before with firm B in Alberta is that we had the image that Firm B had in the rest of the world. Because we didn't really do anything that was terribly negative in the 1970s or early 1980s, we've always had our challenges like any other chemical operation. We didn't have any main incidents, lets put it that way. Its just that there were a lot of things happening to firm B with the Vietnam war, and things like that and we were unfortunate enough to get a lot of that image coming here to Alberta.

B - 60. Interview 35 (5: 32 - 39): In the US this has been in for years already (regulation on fugitive leaks). They have to go in and measure everything that can leak: a value, compressor seals, all those things on a certain frequency and report all of this to the EPA. You knew the Canadian governments were going to do this. They look down to the EPA and say that looks good. So, we're doing it now in preparation and there's some companies that are doing it and they say they're proactive. They know it's coming.

B - 61. Interview 35 (9: 20 - 25): It's global now. It's not a local thing anymore. We got stuff coming from Europe. If some kind of regulation is proposed in Europe, you know it's coming here. Alberta is no longer an island by itself. With the exchange in information, what used to take years takes months or even days.

B - 62. INTERVIEW 4B (16: 34 - 38): For Canadian and American industry we have associations, we have regulations I mean, the Chemical manufacturers association in the United States is five or ten times as big as the Canadian Chemical Producers Association, and they have adopted the same codes of practice that Canada started out with.

B - 63. Interview 34 (5: 13 - 15): If everyone's bragging about how we're going to do better than the government standards, they should tighten things up now.

B - 64. Interview 35 (13: 1- 3): Let the companies regulate themselves. But that's where the public perception is stronger than regulations. You'd see that if you worked in the company.

B - 65. INTERVIEW 29 (14: 45 - 50): I can just look at the reports and someone spills a gallon of gasoline on the ground, that happens routinely in the city and nobody does anything. We spill a gallon of gasoline, we dig the dirt up. Take it away and package it. Then it either goes in the incinerator or secure land fill. Whatever we decide.

B - 66. INTERVIEW 28 (8: 13 - 21): (Regarding the river study) Before that we have done a lot, a lot of work. One thing we found out is that the phosphate content of the river is higher than the acceptable criteria which is set up by the government. You and I are responsible for that. We use a phosphate detergent and then we wash with it and then it goes to the treatment plant, and then the treatment plant doesn't take out the phosphate. None of them do, and they (the City) have three in all. Then any detergents in the river, it is very clear that it is from us. And because we don't want to pay high taxes we have no money for treatment, it's as simple as that. This new study will show all these things and we know that in industry, yet they keep screwing on industry, tighter, tighter, tighter.

B - 67. Interview 35 (10: 40 - 47): But there's public perception again. If you look over, you see those smoke stacks, so that must be where all the pollution is. People think I myself don't cause any pollution, it's the companies that cause pollution. I hate to tell you, but vehicle emissions are probably 50% of the pollution. We buy our cars, we heat our houses, we buy all these packaged goods and everything. We're the ones who are causing pollution.

B - 68. INTERVIEW 4B (6: 1 - 8): Research has shown that most people don't care about numbers and don't necessarily relate to them, so they want to hear and see proof that you do care about their health and well-being and community, and of course we do, we live here and our kids grow up here, and our employees work in the plants, and I mean, how close can you get to it really. We just needed much different ways of responding to questions ... we have to back it up with the action.

B - 69. INTERVIEW 4A (7: 39 - 8: 10): And my concern, and I mean I have this with my own family, who don't work in the chemical industry, is you look at it from sort of a public affairs standpoint, I don't know if we can ever significantly improve our public opinion. I hope we can. What concerns me is that there are ... less people going into the sciences and into the maths. You're getting a society, so far anyway, I hope we'll change it, we have to almost, who don't understand these things at all, who mostly don't get through high school science, so what's happening with our industry is that it is becoming so sophisticated and so advanced and really everything is operated by computer. Often there is a perception that this is a blue color industry where you turn cranks still, you do all that sort of thing. Here's your test tube with chemicals in it. There is none of that. Yet I don't really know if people are reassured when they see all of those computers on the panel. If you're not familiar with it, and you don't operate with it, maybe the next generation will be. I don't know.

B - 70. INTERVIEW 4A (10: 34 - 35): But the public drives the government. Right. Public concerns eventually translate into government regulations. That's how we perceive it.

B - 71. Interview 34 (4: 20 - 28): It's almost as if the public outcry dictated what the regulation was going to be. There was enough stink raised about the environment that the government said we have to do something about this. So, they set up their little teams and this was what they came up with. So we must meet these standards. They're not going to say it's because the people say so we're taking action on this now, but the politicians are supposed to be working for the people. They're supposed to be responding to people concerns.

B - 72. Interview 35 (6: 48 - 49): People tend to be very emotional when they hear something and jump on the bandwagon.

B - 73. Interview 36 (8: 16 - 18): I think the pressure is always going to be there for the environment because there's too many abuses. It's going to take a long time to recover.

B - 74. INTERVIEW 9 (4: 31 - 36): The other thing we do, when we are planning an expansion of our facility, a major change, we'll go out in the community with focus groups in addition to having the open meetings in our plant you know where people are invited to attend. Again, I think when you go out and interview people or get them in a room or a meeting room where there is a process to cause input to come to you, that's the way to do it. You can't sit back and wait.

B - 75. INTERVIEW 4B (11: 16 - 24): If another bunch of companies in the same association are having fatalities and chemical spills, and God knows what then that. The media changed from reporting the name of the company that had the spill to the fact that it was a chemical. Ok So what good does it do us to say, well it wasn't firm B, it was some other company. Our rail cars would never rupture in an incident like that, because we build them like tanks, whereas this company uses thin skinned aluminum with no reinforcement or something like that. It's all the chemical industry. So if you if you it doesn't take a giant mental shift to go from safety of employees to safety of the environment. Exactly the same set of guidelines.

B - 76. INTERVIEW 28 (8: 30 - 35): The river itself, if you want to compare it, is polluted, this is our perception. Nobody swims in the North Saskatchewan river. People ask me why don't you do that, it doesn't have floating debris and stuff like that. You can catch fish in there, and people eat them, but there is mercury in there. So it is industry that is doing all those things. And it is not, it is a natural mercury sediment in this area and the fish pick it up and then people think it is industry.

B - 77. INTERVIEW 4B (15: 35 - 39): That again, we could talk about this for hours, but the ultimate causer of sustainable development behavior needs to occur at a very early age. So if the government starts to use this they will initiate some early , and I'm talking kindergarten, what's left of that, and grade one. That early. So that then probably the next generation would have a much better understanding of it than we do.

B - 78. INTERVIEW 4B (14: 22 - 24): The thing. the most important thing about sustainable development is that you can't treat it on a piecemeal basis, so companies can't say well I'll only work on sustainability up to the point where I can make a profit on it

B - 79. INTERVIEW 4B (14: 32 - 35): The sustainability of the Province, if you will, depends upon alot more than a few companies deciding to draw the line. so it has to be managed on a broad, I guess a really broad basis by society, and if you look at the Round table, which Round Table are you talking about

B - 80. INTERVIEW 4A (22: 31 - 22: 36): So, I definitely think that we definitely don't want the government to be driven by the public that way. We want to work with the Public. We also feel very strongly that for our future, for our long-term well-being, for the whole Chemical industry firm B has to try to turn public perception. So if you wanted to say that in the whole global picture we want to make sure that there is a future for the whole chemical industry period. So it's not so much shutting down individual plants it's looking at the whole picture.

B - 81. Interview 34 (9: 4-6): I think back when I first started or when Dad started. Off-site people coming on site never happened.

B - 82. Interview 34 (9: 10 - 14): You had tours for your family, but I'd never heard of the summer tour program or bringing people in because there's paranoia that he could be a competitor and he could work for Dupont. There's still a policy about not bringing cameras on site. There's quite a bit of openness, though.

B - 83. INTERVIEW 4A (6: 10 - 14):That is what I always try to say (to other senior management). Don't expect me to go out and make something beautiful if you haven't done your work. Those days are gone when you could send out a brochure or glad hand everyone to death and take them out to lunch and stuff, you still may do some of those things, but you better make sure that your performance is behind it.

B - 84. INTERVIEW 29 (8: 1- 8): It is follow through to the point that we make that person (someone phoning in on an emergency call number) gets a response immediately. If someone phones with a concern and it's two o'clock in the morning and they would like us to contact them with a half hour, we will. Somebody who is on call, an environmental person or public relations, will phone the person back at three in the morning. We try to resolve those issues right there and then. Don't let them get out of hand.

B - 85. INTERVIEW 4B (35: 20 - 23): We didn't go through our great list of Outreach activities. We work with the Community Emergency Response, we work with the community in teaching the odd class in the schools, and its not "I Love Chemicals" it's "Life would be impossible without them"

B - 86. INTERVIEW 4A (4: 7 - 17): On top of that, we have designated a senior production engineer to sit on every meeting, and to be the person who goes back and talks to our senior VP and gives him all of that information. So that they are being listened to. So in 1985 86 we started to look at tour programs, invite people inside, to the plant site. We in 1986 started to look at the school program. Though it didn't actually get off the ground until 1987 it started to develop in 1986. We um we rewrote a lot of our information inside, our newsletters and all that went through a great transition. What were they accomplishing, were they doing much? We started to do a regular video show, because we felt that not only was it important to talk to the people outside, but we needed to look at employees in here. If they don't feel good about working here, and they go back to their communities and communicate that.

B - 87. Interview 34 (8: 32 - 46): Since the new project started up, with the new flare, we were getting lots of calls, even from Edmonton. People see this flare and are thinking that we're on fire. People were seeing from Sherwood Park and phoning from their car phones. The neighboring community raised a lot of concerns about it. Communications went out and explained to them in layman's terms. We were very open with them. ... They're trying to keep a good relationship.

B - 88. Interview 36 (3: 43 - 48): As well, the neighbors around the plant would smell it and see it. They're acutely aware of everything that happens here too. If there's a cloud of vapor that comes off the site, the phones are ringing. When you flare it gets noisy, so people across the river are wondering what's going on.

B - 89. Interview 34 (8: 46 - 49): We've had a lot of complaints. A few irate people too. It's unsettling when a guy calls and says that he's going to shut that flare down if we don't. So, do we take that as a security threat?

B - 90. Interview 35 (14: 18 - 24): Before the hydro project they invited all the neighbors and had public forums to tell them what we were going to build and everything. No one had a problem. Well, now they want to expand the vinlychloride plant and that's got to go to the public. I'll bet you anything that there's going to be a lot of neighbors that won't let it happen.

B - 91. Interview 36 (6: 12 -14): And I think they phoned them all. They were pretty active in making sure everyone was well informed so that they didn't have anything to worry about.

B - 92. INTERVIEW 4A (5: 18 - 22):So I was involved in the very beginning, and we talked ok what do we want to do with the community, do we need to do an environmental impact assessment so public consultation was extremely important and right away I was asked to chair a team with senior management on it. How are we going to do the public consultation process effectively?

B - 93. INTERVIEW 4A (5: 25 - 28):We had Round Table discussions with the communities, we did ten of those, we had public meetings, we had a series of public meetings over several nights, we had tours of our site, we had displays and invited folks in.

B - 94. Interview 36 (5: 38 - 40): The problem in the Fort too is that there's not too many who don't have a neighbor that they know who doesn't work for firm B. They've got the information anyway.

B - 95. Interview 36 (6: 34 - 36): There's nothing formal in place (feedback from community to worker to management), but the channels are all open for him (community member) to find the answers. It wouldn't be hard to do, but there is nothing set up to go about doing that.

B - 96. INTERVIEW 4A (4: 22 - 29):We have a group called the Community Advisory Team. And it's comprised of senior management. Mel chairs that, I sit in on that. And its all our key senior management on site. And their sole mission, when it was established in 1986, still pretty well still its sole mission, was to ensure that there is support on the site, in all of our plants for our public outreach initiative, anything you do with the public, so in other words, I don't have to go out there, one person, like a sacrificial lamb and try to convince people that these are good things to do. This is seen as legitimate.

B - 97. INTERVIEW 4A (5: 7 - 11): Our community advisory panel is another thing that we're using quite heavily. When we started up our hydrocarbons expansion we started one plant last year and two this year. I was involved on the ground floor in 1988. Actually I was told even before we were going to announce it "you need to be involved".

B - 98. INTERVIEW 9 (5: 28 - 41): Our consultative process is not targeting at one specific target. It is the relationship between our facility in the community, and the community to our facility. Whatever comes up in the survey of community advisory panel members gets addressed. It could be issues like purchasing from suppliers that are outside the area of the Regional Industrial Association, it could be Education, it could be Community health issues, it could be tax. Whatever these people as individuals and also as a group think are issues those are what we work on. Interesting, because one the major issues in our community is how much property tax our company pays. And yet that did not appear as an issue at our CAP for over a year. It just didn't emerge. So we are truly waiting for the citizens to tell us what they think are problems and what we ought to be working on. Now when it did surface, we provided some information and brought some supposedly neutral people in to give a presentation and then went on to something else. Other things, like job creation in the community, emissions of chemicals from our plants, they emerged as issues, as we fully expected.

B - 99. INTERVIEW 28 (10: 43 - 45): (How come the public doesn't attend information meetings?) Maybe that has to be corrected in terms of public meetings where nobody comes. And then we have public open houses, there are people who come and we give them a presentation. When we build a new plant, there is no objection at all.

B - 100. Interview 36 (5: 28 - 31): If you have them (open houses, etc) and no one shows up, they still see them advertised in the papers. They still know they can go and get answers if they want. If the access wasn't there, they would have a different opinion.

B - 101. INTERVIEW 9 (5: 20 - 22): (Government input to community?) Well, I think, well it's on a much more massive scale. You know, I would not put our input in the category of that of the government. I mean our's is very community sensitive, not just economic and environmental.

B - 102. INTERVIEW 28 (7: 21 - 31): We have a mission ... it's satisfying the public. I don't know how many companies have this mission, this one is just local, see we want to be good, premiere, global manufacturing position on this site. Clearly satisfying customer and societal expectations. Societal expectation, we can look at it in different ways. Customer expectations is that your product has got to be good, got to be cheap, consistent, quality control stamped. But societal expectations, we only have these things in the last five to ten years. What society wants, what society perceives to be good practice, otherwise we won't buy the product. So that means we are building on the perception of the society ... you want to be a model of societal responsibility.

B - 103. INTERVIEW 4A (8: 17 - 25): We often have philosophical discussions, you know. We hope we can improve it. We've done some values research across Canada, and what we've found, its not really a big surprise, is that those people who live in our plant communities usually understand and are more trusting of us usually because we've done a lot of communication with them, a lot of them work in the Chemical Industry. So there is a higher trust level. Now, there is no way, we would bankrupt the company if we tried to communicate in the same degree across Canada. And globally. So we can never hope to achieve that same level. Probably. And, certainly I think that advertising campaigns or things like that are not going to settle it

B - 104. INTERVIEW 4A (22: 12 - 17): But, you know, I can remember, people started saying to me, our engineers and some of our senior engineers saying to me, we're doing it because its a very slim change, because morally we have to do it. And I was just about blown away. Doug Catrin said that, our senior vice president on-site and that really just blew me away, it made me feel really good that they had those thoughts, and thought that way, it really ... so , that was one thing we did.

B - 105. INTERVIEW 28 (18: 27 - 29): (Is there a need to satisfy the public?) Yeah, that's why we have advertisements. No the public expectation on the product side is very important.

B - 106. INTERVIEW 4B (36: 12 - 16): (Ontario hydro) have emissions like you wouldn't believe. I mean sulfur dioxide, ash and God knows what, and I'm sure within regulatory requirements but compared to most Industrial facilities they are an enormous pollutant. But turn on the switch "I love yah," you know. If power is there all of the time you're great. Oh yeah, its important to us to make that connection.

B - 107. INTERVIEW 9 (8: 14 - 19): (Why do more than the CCPA standards?) I think it has a whole lot to do with our credibility. Environmental regulations we don't think that just being average or heaven forbid less than average would be enough. I mean, we're not going to be included in the participation forums if we're just average. So being out in front, a little bit out in front, that's my personal feeling, but I feel that it gets us invited to participate more often than we would be if we weren't out in front.

B - 108. INTERVIEW 4A (5: 22 - 25): And I had 100% support and I think that I really have to give our senior managers credit because some of these people are people who have been in the Chemical Industry for twenty years and have never really been required to do this sort of thing before. And they whole-healthy supported it.

B - 109. INTERVIEW 4A (7: 35 - 7: 39): That's what we realize, we have to credit ourselves for a lot of the negative publicity that we used to get, because we didn't let people sort of see in, there was an attitude that the people that were educated realized you were doing a good job. "Trust us", And of course that doesn't work any more, if it ever did, but it sure doesn't work now.

B - 110. INTERVIEW 4A (16: 25 - 32): I heard Angus Reid speak last year and he was giving sort of public opinion data recently. He was saying: Yes the economy is number one, employment, and all those things, but he said, he was speaking to bunch of business people, don't think that the environment is going away. People now have a certain expectation of business so you can't go back to the good-old-days, if they ever existed, and go back there and think that now we can dump, because you have to maintain a certain standard irrespective. And I believe that. I want to believe that. I would have a really hard time reconciling it, personally, if it went the other way.

B - 111. INTERVIEW 29 (7: 42 -53): We struggle a little bit sometimes with some neighbors on the perimeter. If you go back to the real risk to them, it is low. But the fact is that the nuisance things going on. What you try to do is work with those people to keep them as informed as possible, answer their questions as much as possible and the security guys are emergency responders, they're highly trained people. They're on 24 hours a day. They're well trained on how to respond and it's always very intelligent, very co-operative response. If they can help, right there and then, they do.

B - 112. INTERVIEW 29 (6: 45-54): (What to do with sludge left over from closed-loop system?) I guess that would depend on what it is. I'm not sure what they do with that. It's either secure land fill, it can be incinerated. We have some deep-well disposal, but it's pretty limited. What does into the deep-well is fairly well controlled. I don't know. The technology, if we were to have a Swan Hills here on site, that's another thing. ... People are so afraid.

B - 113. INTERVIEW 4B (7: 32 - 33): We're better than tobacco (in terms of opinion polls). But again, before and after people visit our plant there is always a more positive or less negative perception after they see what we do.

B - 114. INTERVIEW 4B (28: 4 - 11): We keep telling ourselves, and I hope we're right that we keep saying "well, the big companies are ok we're doing responsible care. The Mom and Pops, I've heard that, that still dump soak-wood pentachloraphenol out behind the barn you know, I don't think that happens anymore, but that that's absolutely vital, and even from a letting it be known that those things are out there, its like so many things are out there. Like, where does all of the anti-freeze go? Where does all of the oil go? I mean, you've heard that statistic before right? More oil goes down the drain in Alberta than the Exxon Valdez spill.

B - 115. INTERVIEW 28 (14: 3 - 8): If you want a company to do more you have to pay more, be willing to pay more. Now it comes to a point, and the next thing you say, why do I worry about it. I worry about it because my kids are the future generation destined to dirty water, and it won't be healthy, breathing the air which will make them sick and all those types of things. So following that trend the latest is risk assessment, ecological and human health risk assessment started a few years back.

B - 116. Interview 35(5: 5 - 10): On the other hand, you have Greenpeace and they're sitting on these committees too. So, I guess what they're saying is if we let either side go too far ... because some of the things Greenpeace does you have to wonder if they're trying to help the environment or what they're trying to do.

B - 117. Interview 35 (7: 29 - 35): Like the media is bad for that. They get hold of something and it's like this is the way it is. They just get a hold of it and they're gone. It's black or white. Then the companies either have to defend themselves when the truth of the matter is it's not even like that. It kind of bothers me.

B - 118. INTERVIEW 28 (8: 40 - 43): The third thing is perception. This river study (for example), we have to pay for it, industry has to pay for all these things, and we perceive you and I living in Edmonton, we want our river to be this clean, and so will continue to apply public pressure, to keep studying the river until the cows come home.

B - 119. Interview 34 (7: 25 - 34): (Personal hassle from community?) I don't no. Back when Dad was still chief, in the winter when all the steam comes out from here, people think it's pollution. Dad would always say it's 95% steam. There were cooling towers over there and things letting off excess steam., And everybody would say: "Sure, sure, you're just a Firm B guy. You're just trying to cover up." But, I've never really had to. ... With regards to the river, it's horrible to begin with. No, I've never really had any negative perception that way.

B - 120. INTERVIEW 9 (3: 34 - 37): If the average performance of the industry is not acceptable to you, it starts to reflect on all the industry. So that's why we do a lot of sharing, and helping one another. You're only as good as the weakest performer in the group sort of thing.

B - 121. INTERVIEW 9 (4: 1- 4): We've done surveys that say that truly excellent performance is recognized by the public perception, you know. But let's face it, if the average, or if there are some problems within the industry, that will reflect poorly on the whole industry and you will get excessive regulation, and things that we don't want and don't need.

B - 122. INTERVIEW 4B (18: 35 - 39): No. And that has always surprised me as well. Part of my surprise is that the people that are trying to impress environmentalists, getting companies to try to reduce, change behaviors or reduce pollution, why they don't use the good examples that the other companies might modify their behavior and I expect that is because then it might look as if you are complementing the people that are doing a good job.

B - 123. Interview 35 (7: 26 - 29): Well, firm B is basically about people. So it goes back to the whole thing of public perception because everything drives what the company does. I don't think there's a company in the world that is not based on that.

B - 124. INTERVIEW 28 (2: 35 - 36): It involves 55 people in the health department, the Health Environment Loss Prevention and Safety department.

B - 125. INTERVIEW 4A (7: 5 - 7): That's right. You can't win with that posture (old style management like 25 years ago), and that is what I was trying to tell people that perception really is reality. People's perceptions may be unjust, but you still have to deal with that.

B - 126. INTERVIEW 29 (5: 24 - 44): We struggle a little bit as a company. My personal perception is with public perception. It may be just because of the name firm B. I sort of struggle sometimes and wonder how on earth can we ever be perceived to be as righteous as Dupont, for example. The reality is that Dupont doesn't do anything better than we do. They do good stuff and what have you, but somehow Dupont is revered. With the exception of Greenpeace, people think of carpets and all the good things in life. When you say firm B, they think of pesticides. There's a perception problem that I think we have and so, of course, part of that is the fact that we have concentrated our efforts in trying to say that ... the people in this organization tend to believe what we do and the performance we show should speak for itself, but the public perception doesn't necessarily work that way. I think you have to be able to truly succeed backing it up with public performance. If you've got performance, but you don't have public perception, it could be just as bad as not having performance.

B - 127. Interview 36 (4: 42 - 48): I think firm B got a lot of mileage out of image and being able to say that (closed-loop system). That's not just something they can say in Fort Saskatchewan. They can say that anywhere in the world. Our latest technology in our plant allowed us to do this and this is where it will lead us in the future. All our plants will eventually be that way. They even built a little wildlife preserve and lookouts.

B - 128. INTERVIEW 28 (7: 21 - 31): We have a mission ... it's satisfying the public. I don't know how many companies have this mission, this one is just local, see we want to be good, premiere, global manufacturing position on this site. Clearly satisfying customer and societal expectations. Societal expectation, we can look at it in different ways. Customer expectations is that your product has got to be good, got to be cheap, consistent, quality control stamped. But societal expectations, we only have these things in the last five to ten years. What society wants, what society perceives to be good practice, otherwise we won't buy the product. So that means we are building on the perception of the society ... you want to be a model of societal responsibility.

B - 129. INTERVIEW 4A (5: 11 - 13):It used to be in the good old days in my field that you were involved first of all when there was a real problem "Now we want you to help us with this mess, can you deal with this issue" .

B - 130. INTERVIEW 4A (6: 10 - 14):That is what I always try to say (to other senior management). Don't expect me to go out and make something beautiful if you haven't done your work. Those days are gone when you could send out a brochure or glad hand everyone to death and take them out to lunch and stuff, you still may do some of those things, but you better make sure that your performance is behind it.

B - 131. Interview 36 (4: 31 - 34): That was part of the campaign (more product and less waste). If you read the literature about the vinyl plant expansion it says about how we'll be making more, but producing less waste than we are right now. And society likes to hear that. And so do we.

B - 132. INTERVIEW 9 (4: 31 - 36): The other thing we do, when we are planning an expansion of our facility, a major change, we'll go out in the community with focus groups in addition to having the open meetings in our plant you know where people are invited to attend. Again, I think when you go out and interview people or get them in a room or a meeting room where there is a process to cause input to come to you, that's the way to do it. You can't sit back and wait.

B - 133. Interview 35 (5: 1 - 5): Obviously, that's seen as being proactive because they're sitting on these committees. We're giving you input, but at the same time they want you to do what's best for them (the corporation). I think with any major company in Canada you'd see the same thing.

B - 134. Interview 36 (4: 53 - 5:2): My guess would be that we do get a lot of mileage out of that (the wildlife park) in public image. It sounds kind of nice to have the ducks and the foxes and the water right next to the chemical plant.

B - 135. INTERVIEW 4B (4: 31 - 39): It also causes the communications issues to be divided between the ten or twelve managers at the site. In fact all of the managers at the site are involved with one two or three of these so its a tremendously effective way of insuring that action occurs. Its not just on one or two people like the public affairs manager, it is really spread out, and really much more effective

B - 136. INTERVIEW 4A (5: 32 - 35):So I feel there is fair amount of empathy, and I'm doing a fair bit of values research now, and caring and empathy are two key things. Sometimes when you tell technical people, engineers, that sort of thing, they kind of look at you crosseyed, "where's she coming from". Does she really work in the Chemical Industry.

B - 137. INTERVIEW 4A (24: 13 - 23): It would be very easy for the company, particularly in tough times, we're all suffering through that right now, to say Ok public affairs we really don't need your stuff anymore, we're going to let a few engineers get out there and develop strategy and we're only going to have one of you. And the message we've got, ... so far is none of our public affairs functions are going to be decimated to a point where we don't have one anymore. ... And that's come from very senior management, that's a very strong statement because you can expect that there are different folks out there looking at different service groups, its complete overhead, and saying, do we really need you right now. And that's nice, and we're continuing to look at new programs.

B - 138. INTERVIEW 28 (3: 32 - 34): We believe in protecting the environment as a part of doing business. We believe that, in this company, is part of doing business.

B - 139. INTERVIEW 4A (9: 24 - 33):If you want to get even more philosophical, about why we do these sorts of things, the company globally has learned from experience that they will beaten up badly and it will hit the money belt if they don't take the public's opinion into account. Now, agent orange if a good example. This company was one of seven manufacturers of the stuff, we weren't even the major manufacturer, and we tried to get out of it, selling it to the American government, and because we had some senior managers who were very patriotic at the very senior levels, they felt that they had to do that, they felt that our boys were over there are being killed and everything and what happened over that is that they were deserted over that, they were left on their own. They had to settle up to the tune of 180 million dollars.

B - 140. INTERVIEW 28 (8: 40 - 43): The third thing is perception. This river study (for example), we have to pay for it, industry has to pay for all these things, and we perceive you and I living in Edmonton, we want our river to be this clean, and so will continue to apply public pressure, to keep studying the river until the cows come home.

B - 141. INTERVIEW 4A (22: 17 - 18): We, I would think, often do things because we don't want to drive the government to come in with even more restrictive regulations

B - 142. Interview 36 (8: 22 - 27): I think Industry's got the right idea in terms of regulation. If industry can keep taking advantage of things in terms of technology and doing all the things to be as clean as they can within reasonable limits, there won't be regulations there. Government will just keep an eye on it. If they don't, then regulation will be enforced.

B - 143. INTERVIEW 28 (13: 20 - 25): At the same time we tell our top management that the river is polluted, we can't pollute the river, in this phosphate business, and so we use that as a strong argument. At the same time the rest of the associated arguments come into play. Terms of you don't want objections, this is one good selling feature to tell the public, that we are not doing this, and then we can avoid the future costs of monitoring this thing, we can avoid future impact of the regulation that comes into play.

B - 144. Interview 36 (8: 16 - 18): I think the pressure is always going to be there for the environment because there's too many abuses. It's going to take a long time to recover.

B - 145. INTERVIEW 9 (1: 30 - 37): I actually work very close to things that are being published by government, hopefully prior to their being passed through and being made into regulations. Quite often we are asked for input on what the Government of Alberta realizes are issues or are going to be issues. Things like an environmental field, Canadian regulations versus or in concert with Alberta regulations, types of reporting requirements that we need to adhere to. If we have incidents. Also the protocols for analyzing the emissions testing for trace amounts of chemicals in the environment if it be from our plants or background level.

B - 146. INTERVIEW 4A (16: 25 - 32): I heard Angus Reid speak last year and he was giving sort of public opinion data recently. He was saying: Yes the economy is number one, employment, and all those things, but he said, he was speaking to bunch of business people, don't think that the environment is going away. People now have a certain expectation of business so you can't go back to the good-old-days, if they ever existed, and go back there and think that now we can dump, because you have to maintain a certain standard irrespective. And I believe that. I want to believe that. I would have a really hard time reconciling it, personally, if it went the other way.

B - 147. INTERVIEW 9 (8: 25 - 41): (How to keep track of what government is up to?) Well, we have a couple of mechanisms. Most of them are pretty straightforward. We're on mailing lists. I'm on mailing lists for all of the government's public plans and information, three year plans, and the water resources policy changes, anything about the emissions control, anything to do with comparing our regulations to national regulations, so I have to scan that, you know, really quick, and look for things that will impact our organization or our community. When I recognize something that we need to get input on, then I take that back to the proper person in our organization. And they'll work on it. Likewise, the environmental people in our company they have information, they're on the mailing lists for government things, and they will often take action on their own. The role that I have applies to other areas aside from environment. Like property tax assessment, education initiatives, municipal affairs, so you have to know when to respond and when not to because you could spend all your time chasing things that may not have that big an impact. We also have other people that we meet with the government on regular basis close to specific issues. And from time to time at these meetings you'll learn something else that may be planned. It's the same way that we keep the government informed about what our plans are.

B - 148. INTERVIEW 9 (1: 30 - 37): I actually work very close to things that are being published by government, hopefully prior to their being passed through and being made into regulations. Quite often we are asked for input on what the Government of Alberta realizes are issues or are going to be issues. Things like an environmental field, Canadian regulations versus or in concert with Alberta regulations, types of reporting requirements that we need to adhere to. If we have incidents. Also the protocols for analyzing the emissions testing for trace amounts of chemicals in the environment if it be from our plants or background level.

B - 149. INTERVIEW 9 (2: 26 - 31): I think it's a Canadian approach (participative approach) in most provinces. With industry. Not just the chemical industry. I think in particular here in Alberta. They've done an exceptionally good job of going out with the Round Tables. A consultative and participative approach. Now that's not to say that when you tell the government what you think ought to be done that they are going to adopt it 100%, far from it. But they do genuinely go out and look for and solicit input for policy and regulation before they make the regulation.

B - 150. INTERVIEW 28 (9: 37 - 44): (On cooperation with the government.) Yeah, more team work. Alberta is most advanced in terms of the team concept. ... Environmentally speaking it is still the same way, if talking to environmentalists they say this is quote "not supposed to be this way", but from an industry perspective we are most cooperative. Sit down across the table, we don't need our lawyers. Sit down across the table I give you this proposal you look at this, lets work together, what is the best way? We want to be in business and they want to be in charge. How do we work together? There is a lot of that going on which you cannot do in the US.

B - 151. INTERVIEW 9 (4: 40 - 5: 4): The government has done more of that (searching for community input) in the past year and a half than perhaps the previous ten. And the Round Tables that you read about in your newspaper, and the newspapers don't always treat these roundtables in a positive light, but the roundtables and the requests for submissions for regulation change by this government have been really commendable. I mean, you've got hundreds and hundreds, thousands, of people and groups inputting into these prospective changes.

B - 152. INTERVIEW 9 (2: 12 - 21): Firm B's opinion, it's more than opinion you know. It's our experience, our knowledge and skill whether it's in analyzing from trace quantities in chemicals or really how regulations ought to be written. So that they get adhered to (by the Industry). We get the input more than one way usually. We get input as firm B, our own company, we also get input through the CCPA, which has really been a leader in trying to be proactive in these kinds of things, and we also get a third input through our local RIA of Ft. Saskatchewan. Which again deals with environmental issues as well as competitiveness, Education outreach and those kinds of things. So, the way things work in the province is really quite participative. And that's helping, it really is.

B - 153. INTERVIEW 4A (32: 6 - 9): I think if you look at what has been put in place with the Alberta government you would have to question if anyone in Industry is effectively lobbying these days. I think it is more just a case of yeah we would like to have our voice heard at the table

B - 154. INTERVIEW 29 (9: 28 - 43): In Canada we're a lot luckier (than in the USA) because first of all the legislation is a lot more localized. Occupational health and safety and environmental issues are typically local legislation. That means local people like myself and Ken will deal with local people and we can develop working relationships. From an occupational health and safety point of view, I've got an excellent working relationship with Alberta Labour. I don't hide anything from them. I'll tell them everything they want to know. I tell them more than I have to tell them. We have Section 13 in the Act that is very specific of all we have to report, but I tell Alberta Labour way more than that. Occupational health and safety is not quite the same as Alberta Environment. Alberta Environment is quite a bit more legislation minded. You have to report things in a set way and everything gets it file number and it's all done in a regimented way.

B - 155. INTERVIEW 4B (16: 8 - 10): They are not going to get elected on a sustainable development platform. They wouldn't be (a) able to articulate what it really means and (b) if they could it would lead to decisions that would be unpopular in the short term

B - 156. Interview 34 (2: 42 - 52): There's something else that's come up in the last few years too. When a unit calls and says that they've spilled two kilograms of solvent into a contained area due to a safety value or something, we have to decide if this is a government reportable. Before, we just wrote up all the information on the computer and it just shifts it all to Ken and the whole environment group. Now, if it's confirmed, it goes to upper management. Now, everything is site reportable. We call the environment on call. If it is Ken, he'll say "Ok, well, is it a government reportable? Did the unit tell you?"

B - 157. INTERVIEW 28 (2: 17 - 28): So with a site of this nature you can tell from a government permit and licence testing point of view that automatically we have a lot of testing to do in terms of quality of air, the stacks. We have a landfill in there, so things that go in have to be tested. We have one in-take from the river. All these things needs to be tested. All the ponds to keep the storage, are tested before they are allowed to discharge. That group (monitoring) that does this type of routine work. So basically we put them all in operations and from an environmental angle because we have ten world scale plants here and all of them will have different environmental activities, which require permitting. At times they have environmental incidents in accordance with the new government guidelines. So our guys are involved with helping them with elevations for investigations, stuff like that. That would be very similar with this type of set up for each of them will be responsible for a few plants. Similar set up for this department in safety. They have some safety specialists to do that type of role, like safety specialists.

B - 158. INTERVIEW 28 (10: 22 - 28): (On future regulation.) Yes, that (awareness of) is constant in the planning stage. We don't bet that this type of relationship will go on forever (cooperation with the Alberta government). Like the cooperation we saw in the NDP government in Ontario, although for the time being you and I don't see that, but who are we. We can't predict five years from now Alberta changing to NDP. Highly unlikely, still. But Ontario is an example. It used to be ok with a Conservative government, but once the NDP comes into play they work like it's the US CPA, all the rules, regulations changes, charges. OK. They lay charges on the companies, employees, environmental services folk.

B - 159. INTERVIEW 4A (22: 22 - 25): If it really helps the environment and does good things for it great, but unfortunately, government is driven by the public and some of the things are not really that progressive. They are more punishment orientated, nobody learns from it, nobody gets on board and improves the environment

B - 160. INTERVIEW 9 (7: 4 - 8): All levels of government are concerned with both environmental performance and economic performance and prosperity. And that's all very genuine. No level of government wants to trade one off against the other. They want both to continue, and improve, in concert. Sustainable development you know, where you have growth but you don't compromise the future generations.

B - 161. INTERVIEW 4B (14: 39 - 15: 6): The Alberta Round Table of the Environment and the Economy? Yeah, the vision that they developed, was a lot, there were nine vision elements and only one of them referred to economics. Biodiversity, carrying capacity and quality of life, market forces, so I think that's important so that whenever people talk about SD they talk about the broadness of it, not cherry-pick. That would be dangerous. It is gaining a little bit of momentum now. People are starting to talk about it in government. I've heard the minister say "of yeah we're going to use that report of one of the assistant DM that people were involved with working on this report and said "oh yeah they're going to start using these indicators pretty soon". But they will start to petter out if people start to cheery-pick.

B - 162. Interview 35 (13: 18 - 30): The Alberta government rarely prosecutes anyone because they don't get convictions. The other guy that I worked with worked for a stack sampling consulting company. He said it's a total waste of time for them to take you to court. A waste of time and money. All you're paying is the lawyers. Alberta Environment comes in and say's "These guys were over their limit on whatever parameter." The company gets a good lawyer to come in and tear the stack sampling apart because you didn't do such and such. The thing gets thrown out of court and you've just spent $100,000 trying to prosecute this so the only thing they prosecute you on is failing to report. The report has to be on by such and such a day.

B - 163. Interview 35 (5: 45 - 49): There are some petroleum companies like Esso that said "we can't do that". How can we do all this? So, if all the companies get together and say they couldn't do it, would the government still push it or would they back off of it. I don't know.

B - 164. INTERVIEW 9 (7: 12 - 22): (Differences in local and Provincial objectives?) Well, the Provincial objective might be to create more jobs, more investment climate, and that may, in keeping with the environmental regulations. Environmental regulations are provincial. The local level concern is always going to be addressed by the environmental regulation of the Provincial government. So that's not an issue. What may be an issue though is what investment incentives the Province is allowed to implement, because that's ... not tax breaks, but maybe a uniform tax regime across the Province, or taxes, Income tax, Property tax, Capital Cost Allowances, which are more in harmony with the rest of Canada. So the, I guess it's, zeroing in on potential economic disparity. The Provincial government does not control the economic scene in municipalities. Municipal leaders do.

B - 165. INT 9 (6: 20 - 22): We've realized recently that there is a tremendous amount of politics at the municipal level which, this is too strong, but almost prevents the Provincial government from getting in touch with the local residents of the communities. It is so strong.

B - 166. INTERVIEW 4A (6: 14 - 18):One of the tangible things that we've done also is that we've developed firm B Canada Environmental Progress Report. We started that in 1989 as an annual thing and that's a major challenge because that's really where we are improving on our emissions and environment performance and where we still have to go.

B - 167. Interview 36 (7: 13 - 17): I don't think they were ever at a point where they put something off because they could get away with it, to make more money. The issues that I've become aware of through the media is stuff that we really don't have anything to do with.

B - 168. Interview 34 (4: 35 - 44): (Why do more than they have to?)

Probably to give themselves a little cushion in case they do end up with a little ... like if the regulation for something is 35 ppm and they have a little oops and they let our 25, but the firm B standard is 20, they exceed the firm B standard but they're still ok with the government. They give themselves that cushion. So, they'll have an investigation on site. They can report it to the government and tell them that what's happened is that they haven't exceeded their guidelines, but I don't know if they'd do that or not.

B - 169. INTERVIEW 9 (4: 10 -12): I think we're always looking for a combination. Of cooperative change and approval and underlying regulation. There are minimums that we have to meet and you know we'll make sure that we meet them and have to do better.

B - 170. INTERVIEW 29 (4: 48 - 54): The other thing is it's good business sense if you can set the standard, first of all, if you believe that doing things well is going to pay dividends in the long run and you can set a standard that your competitors have to come up to, then that helps too.

B - 171. INTERVIEW 4B (12: 29 - 38): One of the trade-offs there is, its almost a pitfall, is when you are out ahead, and then do a great job of communicating it, then that becomes the new standard. Its like ok now we agree that you're responsible and you've handled this emission, you're reducing it, so when you reapply for your licence, to emit air emissions or water emissions, we're going to set the standard even lower so at some point it really helps to bring the entire Industry up in terms of performance but it gets tougher and tougher. Which, well, we know we have to, but you know its tough, it must be tough for these government people to walk that line as well. Like, where do I stop reinforcing these companies for lowering emissions, and then in effect punishing them by writing in lower ones. You know what I mean?

B - 172. Interview 35 (3: 37 - 41): Canada has the benefit because we have the regulation because we want them as people who live here. I don't want them dumping a whole bunch of crap out the back and the same with the air. I live here.

B - 173. Interview 34 (11: 28 - 30): I think the closed-loop and self-sufficiency is the future here. Eventually they're just going to shut off the out-takes to the river.

B - 174. Interview 34 (4: 20 - 28): It's almost as if the public outcry dictated what the regulation was going to be. There was enough stink raised about the environment that the government said we have to do something about this. So, they set up their little teams and this was what they came up with. So we must meet these standards. They're not going to say it's because the people say so we're taking action on this now, but the politicians are supposed to be working for the people. They're supposed to be responding to people concerns.

B - 175. Interview 34 (3: 49 - 54): I'd say the government has really clamped down with the regulation. There's all these environment community days that have gone on for years, but nobody's really paid attention to them. All of a sudden, some group got together and spoke in a loud enough tone that we've got to protect the environment and everybody is agreeing. It's like a bandwagon.

B - 176. Interview 35 (13: 1- 3): Let the companies regulate themselves. But that's where the public perception is stronger than regulations. You'd see that if you worked in the company.

B - 177. Interview 35 (6: 21 - 26): They (management) doesn't really whine about this stuff. If it has to be done, it's going to be done. I'll give them one thing, they don't sit around and wait for this stuff to happen. They do look and say "government is working on this or that, so we will try and influence what's going to happen."

B - 178. INTERVIEW 4B (13: 12 - 16): I think that the spirit of the compliance type auditing is not in fact. But the way its written it sounds like that, and that's becoming very much the same as the United States legislation, so we have this concern that legislation writers in the Province will just copy EPA paragraphs and things from the US. And of course we know that that's not the most effective way to legislate anyway. It has to be a much more shared and open trusting

B - 179. Interview 35 (5: 14 - 16): I've seen some of the stuff that firm B has done where they have tried to push the regulations to make it better for the company.

B - 180. Interview 35 (4: 49 - 52): If there is a regulation coming, a lot of the big companies will lobby or will sit on those boards that will decide what the regulation will be. They're going to try and push the regulation the way they want it.

B - 181. INTERVIEW 29 (5: 7 - 17): So, something like the CCPA is to our advantage because it causes our competition to be operating at a similar standard to us. The other thing too, is that most of the Canadian Industry, I think that we all agree that if we can band together and form our own kinds of rules and regulations and monitor each other, because there are bad actors within the chemical industry, so in the general group it keeps the bad actors up (to standard) and the regulators out. Don't get me wrong. I think there's a lot of need for government regulation, but to a degree. I think Alberta's got a good balance of legislation in a cooperative way.

B - 182. INTERVIEW 4A (6: 14 - 18):One of the tangible things that we've done also is that we've developed firm B Canada Environmental Progress Report. We started that in 1989 as an annual thing and that's a major challenge because that's really where we are improving on our emissions and environment performance and where we still have to go.

B - 183. INTERVIEW 9 (1: 11 - 15): This is our fifth annual environmental progress report. And we've had it around for a couple of months. You probably should read this if you want to get a sense of where our company is coming from in openness, communication, and particularly in environmental issues and emissions. And what our plans are.

B - 184. Interview 35 (2: 24 - 28): It seems to be fairly consistent. There's always new regulations coming out. It seems like everything's tightening up, but that's more from the government forcing the companies to do it as opposed to the companies changing something.

B - 185. Interview 35 (13: 9 - 13): Ontario has tight regulations. The site in Sarnia has people constantly on their back about something. Is that good? If I have to send in all those reports all the time and not getting anything done, is it really worthwhile?

B - 186. Interview 36 (5: 10 - 16): (Future regulation, prototype) I think that's another driver. It would be nice if the government would just leave you alone. The only way that's going to happen is if you can prove you're responsible without them. It's cheaper for the government not to have to do it and it's cheapest for you. You do this thing to show that's the direction you're heading, so they're happy and they stay out of it.

B - 187. INTERVIEW 4B (13: 21 - 22): In a lot of cases, there is a prescription for how to like in some cases, what equipment to use, in others what analysis to use, and then of course it gets very expensive to comply with that. Even each point source for an emissions you might have on the site.

B - 188. INTERVIEW 29 (4: 20 - 34): There is a belief that we much prefer to be seen as responsible and therefore, allowed to set our own agenda. If we can continue to be seen as responsible, you end up with a far better relationship with the regulators. The government doesn't have to spend a lot of time and money coming down on you and at the same time we don't have to spend a lot of time responding to what often becomes a bureaucratic system when you're responding to death. We see it in our sister places in the States where they are responding to the EPA or OCEA, very tightly regulated. What that tends to do is that you put so many resources into meeting the regulations that that's all you concentrate your efforts on doing and you don't concentrate or make any effort on getting better. It's a bit of a catch 22 situation.

B - 189. INTERVIEW 4A (27: 28 - 33): Yes. They have half the things that firm B has in place, and it would be easy to assume that they are not as good a company. They don't have a public affairs group leading them on strategy or anything. The only problem is that they are a much smaller organization. They have to look at the bottom line, and they can't weather the crisis as easily so they have to focus on that very closely. So that's the only caution that I would give you. You're not really comparing the same thing.

B - 190. INTERVIEW 28 (9: 27 - 30): In the US my counterpart in a similar division, they have ten times the people that I have. They have ten people working on regulation alone. I have one regulation specialist. They would have ten for air, ten for water, ten for ground water.

B - 191. INTERVIEW 9 (2: 35 - 3: 2): In Canada they have regular meetings of the Provincial environment ministers, and I'm not sure if it's every quarter but it sure is more than once a year. I'm sure that they compare legislation. I think that they are tuned in quite well to what is happening in the US. The EPA. But so far they've resisted putting in the type of systems that they have in the US, which is you know the regulations are written, and if you, without enough input, and if you violate them you're punished and that kind of thing. So I think that the Canadians have been ahead of the US in that regard. Our emission controls are at least as good as if not better than they are in the US.

B - 192. INTERVIEW 29 (7: 4 - 12): In fact, lately we had a lot of politicians come around here. We've had a public affairs guy do everything he can to make sure that he can educate with a show and tell type approach with as many politicians as possible. They're making big decisions. They impact on us all. They really need to understand what they're making these decisions on. This is the biggest petrochemical complex in Canada. When they come here, I think 100% of them are amazed.

B - 193. INTERVIEW 4A (14: 10 - 14): Off the river is one, perhaps (cost without benefit for good environmental behavior). Perhaps. Another one we hope to have in place is our power and utilities plan. We have a program right now, the numbers are rough, but about a ten million dollar emission reduction program on our nitrogen oxide. And there is no return for us, its just that we shouldn't be emitting it. It has an impact on the environment.

B - 194. Interview 34 (4: 1 - 10): But I think it's a little too late, We've got holes in the ozone layer already. Sure, we cut it down, but most of the damage has been done. This is all knee-jerk reaction. Like firm B, they're recycling the water and not dumping into the river which makes it a self-sufficient plant, but I think back to Sarnia when they dumped some stuff that they called the blob. It cost them a million bucks or something to clean that up. I used to live in Sarnia and I think about the stuff that they must have been dumping in the water back then when nobody cared.

B - 195. INTERVIEW 29 (5: 1 - 7): If we all operated at the lowest common denominator all the time, we'd be out of business pretty quick. At the same time, we can't afford to be leading the pack and have all our competitors running at some lesser standard. For example, what we end up doing is we spend money and it costs us the competitive advantage.

B - 196. Interview 35 (8: 52 - 9: 4): So, there's that conflict of how I'd like to see no emissions to the air and water, but I probably wouldn't have a job then: Canada is perfect.... We have the cleanest country in the world, but we're all unemployed. So it doesn't do us any good. So, there's always been a trade-off. The more you see, the more you realize that there are these trade-offs.

B - 197. Interview 35 (12: 10 - 16): But I think the people who are making decisions are stuck between "I think I should do this" and "business is business". Certainly I'd like to reduce this emission, but if takes that expense, they're going to say forget it. It's far too expensive for what you get out of it. It goes around in a circle.

B - 198. INTERVIEW 28 (9: 14 - 21): ... actually within a short time everybody will have that zero pollutant discharge proposal and all the members of the CCPA will blame it on us, because everybody is telling the government it is not possible, you can't do that. Here comes firm B Chemical with zero discharge into the river from the new plant. I have people calling me in the field for a long time saying "How the hell do you guys do it? We looked at it once, it is not feasible and it is expensive". And this is more expensive. We had a hard time selling it to our corporate office who basically controls the dollars, but we managed to convince them.

B - 199. INTERVIEW 4A (25: 30 - 35): You're right, but the point I made to someone the other day because they were being kind of cynical about what are we going to do in the future when tough times come in terms of environmental initiatives and I said "that ten million dollar nox program is still on schedule and it is giving us no bottom line return, but the company ... is still committed.

B - 200. INTERVIEW 4B (13: 29 - 35): One of the new hydrocarbon facility here, it was designed for zero emissions of water to the river, and probably cost 25 million dollars to design that in and that for sure is an extra cost, at least in 1994. But if you look ahead down the road, we won't have to do any sampling on that because there won't be any the regulations that are written about effluent and those kinds of plants won't concern us as much any more, because we aren't emitting, at least through the water, so there is some pay back even in something as drastic as that.

B - 201. INTERVIEW 4A (14: 1-6): But, I had a philosophical conversation with our local weekly newspaper reporter, and he was saying this is our emissions report, he was saying I bet you guys, what's your bottom line, you're doing all this for your bottom line. So where are you going to get the dollar value out of that. And I said I won't fool you. There are a lot of things that are good for the environment that are also good for our bottom line but there are some things out there that aren't particularly.

B - 202. INTERVIEW 29 (11: 7 - 17): When we tackle an issue in FIRM B chemical, I look at the data. I make a simple chart and use the 80-20 rule to tackle 80% with the least amount of effort. That's the way to do it. Now, you don't have to be too smart to know which one I'm going to tackle. The reality is that if you look at this and read everyone of them, you can give them one name. It's called behavior. So, behavior is what needs to be tackled. So, that's how I do my business. Government could do their business the same way. If you want to clean up the river, let's do a chart and see what's going into it and fix it.

B - 203. Interview 36 (4: 23 - 26): Which makes it cheaper because we don't have to spend more money getting rid of the waste. Spending the money to make your reactors more efficient, that's probably the biggest.

B - 204. INTERVIEW 29 (3: 23 - 40): Well for our division, we didn't downsize, but we still went through the same reorganization. We just didn't hire. ... As we've gone through the restructuring, there was a significant emphasis placed, by the organization, on cost and on making money. The fact of life is that since we've gone bigger globally, we found that competition is hot and heavy and we can't compete. We've had to make some changes to the way we do things and one of the ways that firm B corporation came out and described this is they put out a thing called strategic blueprint. It very much is a vision, if you like, of the state of the organization and the way it needs to be. It talks about competitive standards and it talks about supervisor accounts and culture and priorities. Concentrate of all the high value opportunities and get rid of all the low value opportunities. what happened is that as we went into that with a real major thrust, it kind of detracted from some of the safety. There tends to be a trade off.

B - 205. Interview 36 (4: 10 - 18): I think in some cases though, it's cheaper to pollute less. We're going to expand the plant so we're going to go from about 800 million pounds a year to about 1.1, so that's about a 25% increase. Yet, we'll have the same or less waste. We have an ecology area of the plant that treats all the waste, so it's going to cost money to make it bigger. If we do a better job on the expansion and make it more efficient and we make the same amount of waste or less, then we don't have to spend any money there.

B - 206. Interview 34 (5: 37 - 47): (Values being taught?) It's a consideration in the day to day job. If 2 kg are spilled, that's not very much. In the old days it would just be hosed down into the grass or the gravel. No one will ever know any better. Now, it's like you better report this because someone will find out., You can almost hear it being said. It's a pain in the ass to call and say that we've spilled two kg of solvent because this or that happened because then we have to do a two or three page report on the computer of suspected source, wind direction, weather conditions and so on.

B - 207. Interview 36 (3: 10 - 22): I'm sure one of the things is like from an employee point of view. You don't want to be breathing the stuff and all that. Each employee feels that way. In the early days we had a hard time to just keeping it running because this was the first vinyl plant around here anyway. So, we had some guys from Texas come up and help us start it up. There was lots of learning to be done. It was like you were busy all the time. Now, it's something that we've always wanted to do and as time went on we got better at running the plant and made improvements to make it better. Then, it gives you time to make small improvements in terms of purging equipment out and developing special tools to help us do it better.

B - 208. Interview 36 (4: 31 - 34): That was part of the campaign (more product and less waste). If you read the literature about the vinyl plant expansion it says about how we'll be making more, but producing less waste than we are right now. And society likes to hear that. And so do we.

B - 209. INTERVIEW 28 (16: 25 - 26): So in that case from their angle they are looking for liability and it certainly will impact on everybody who needs a loan, which everybody does.

B - 210. INTERVIEW 28 (16: 18 - 21): Because once you forfeit, that is it. You know somebody is looking after that (liability issues). The banks. So in this case I would say the bank pressure is getting more and more in the future term. Banks didn't used to have engineers on staff and I guess some of my friends are working for the CIBC in the environmental assessment division, and they used to work for chemical companies.

B - 211. INTERVIEW 29 (2: 31 - 44): We believe in the fact that we can eliminate accidents. As an individual, I couldn't really get my mind around how we could say that and honestly believe it. How could you possibly eliminate injuries? But, as I've spent more time in the business of safety, I've come to understand that safety performance, or for that matter the environmental performance, these kinds of things go hand in hand with productivity or quality of your people. They mirror each other, in fact. If you have an organization that is outstanding in safety performance, what you will see is that they are also outstanding in productivity and yield and what have you. They go along together. You can't have one without the other is what you start to see.

B - 212. INTERVIEW 29 (13: 16 - 23): It appears that certainly, in my time at FIRM B, it pays dividends. I'll give you an example. Our compensation premiums with the Worker's Compensation Board are at a 40% discount. If we were at the 40% surcharge, which would be very easy for us to do by being not a lot worse than where we're at, it would cost us two million dollars per year. That's direct. Cost. But there's many other costs associated with that.

B - 213. INTERVIEW 4A (9: 15 - 24): We got government approvals without any major public objections in 1991. Now that was seen as a real coup. We were in the midst of all the pulp and paper issues, still are to some degree. But that was seen as remarkable, by everyone involved. We didn't hide our head. Now grant you, you can argue that we're not up in northern Alberta where all the heat is, and we're in Fort Saskatchewan, but we had the potential for some issues but and I attribute it to a lot of things. I attribute it to first of all we were right on top of it, we tried to anticipate what was happening. We tried to address it, and it cost us some money. But also we had all of the outreach programs in place. For us to go out, as we're trying to get approvals would have been a big chore, so we had all of this in place.

B - 214. INTERVIEW 28 (19: 19 - 24): (Some environmental behaviors simply don't pay?) In time, eventually. We don't see an immediate outcome today, or tomorrow, or even five years from now. Always pays part (from Waste Reduction Always Pays) doesn't mean, to me, not necessarily monetary return, it could mean personnel attitude, employee attitude. Doing something may cost you money, but the process of doing it your awareness has been raised as you would draw on another project, you would look at things that you haven't looked at before. Like this is a journey, various people preaching, this is not the destination, this is the journey thing. But we are nowhere perfect...

B - 215. Interview 34 (2: 18 - 24): It used to be fairly easy to cover up the spills if you didn't want to get in trouble. Now they don't leave a margin for cover up. They want to know what's spilled where and how much. Unless it's operator error, there won't be any retributions on the part of the operator, they just want to know because they have to cover their butts environmentally.

B - 216. Interview 36 (6: 47 - 53): There was no talk about the ozone layer in 1970. Things like global warming and stuff like that. In some ways yes, and in some ways no. When I started here, a hobby of mine was cars, so I know what cars went through in the 70s. Industry did next to nothing. Now, there seems like we're doing everything so there's like a 20 year lag between the two.

B - 217. Interview 34 (4: 1 - 10): But I think it's a little too late, We've got holes in the ozone layer already. Sure, we cut it down, but most of the damage has been done. This is all knee-jerk reaction. Like firm B, they're recycling the water and not dumping into the river which makes it a self-sufficient plant, but I think back to Sarnia when they dumped some stuff that they called the blob. It cost them a million bucks or something to clean that up. I used to live in Sarnia and I think about the stuff that they must have been dumping in the water back then when nobody cared.

B - 218. Interview 34 (6: 25 - 31): There's guys that come to work that are the typical firm B guy, that wants to do great things for firm B. Then there's guys who are just looking for ways to make the job easier or more enjoyable. That's where I am. I found that I hate doing environmental reports because they're so long. Every other report is just one or two pages.

B - 219. Interview 35 (8: 22 - 24): They say they will be off the river by the year 2000, so we don't need to fix this. There won't be anything going to the river.

B - 220. INTERVIEW 4A (16: 25 - 32): I heard Angus Reid speak last year and he was giving sort of public opinion data recently. He was saying: Yes the economy is number one, employment, and all those things, but he said, he was speaking to bunch of business people, don't think that the environment is going away. People now have a certain expectation of business so you can't go back to the good-old-days, if they ever existed, and go back there and think that now we can dump, because you have to maintain a certain standard irrespective. And I believe that. I want to believe that. I would have a really hard time reconciling it, personally, if it went the other way.

B - 221. Interview 36 (3: 28 - 29): The environment, especially in the last five years, is becoming a bigger and bigger issue all of the time.

B - 222. INTERVIEW 28 (7: 15 - 21): First of all why have that environmental protection, that safety protection in the box in the first place. If at the corporate talk year to year nobody tells me about environmental safety, that means it is not on line. First of all, why is it in the box? That one is pretty straight forward because top management sees that as part of doing business, and therefore they stuck it in the box. They did emphasize quite strongly that if we don't have environmental protection, we are here for the long run, they keep emphasizing that we are not a fly by night outfit, we have more than 100 years of history.

B - 223. INTERVIEW 9 (1: 37 - 41): My role, I would say, is non-technical in that I make sure that the appropriate people in our company, we have ten or twelve people at the plant who work in the environmental quality department. You know they have a manager, a director, and specialists who are really trained to analyze to interpret regulations. To do testing and reporting and that kind of thing so I make sure that they know what is coming.

B - 224. Interview 35 (3: 32 - 37): I was down in the Texas divisions a couple of years ago and the US and Canada have tight regulations, actually I think the US is even stricter in terms of they generate a lot more paperwork. Whether they get any value out of it from an environmental point of view, I don't know, but I know they do a lot of paperwork.

B - 225. INTERVIEW 4B (12: 29 - 38): One of the trade-offs there is, its almost a pitfall, is when you are out ahead, and then do a great job of communicating it, then that becomes the new standard. Its like ok now we agree that you're responsible and you've handled this emission, you're reducing it, so when you reapply for your licence, to emit air emissions or water emissions, we're going to set the standard even lower so at some point it really helps to bring the entire Industry up in terms of performance but it gets tougher and tougher. Which, well, we know we have to, but you know its tough, it must be tough for these government people to walk that line as well. Like, where do I stop reinforcing these companies for lowering emissions, and then in effect punishing them by writing in lower ones. You know what I mean?

B - 226. Interview 34 (2: 10 - 17): Yeah, there's been a lot. When I was in operations, I never even thought about the impact on the environment. ... We'd have spills within the dyked area and we'd lose 1500 hundred gallons of glycol that soaked into the ground and it was gone or it was collected in the catch basin where there has been many spills over the years when I was there. You don't think anything of it.

B - 227. INTERVIEW 4A (21: 36 - 22: 8): I mean. some of it (environmental behavior) is not altruistic, but some of it is almost a moral issue if I can be that grandiose. For example one things that we've done, for a community across the river, we have developed an emergency system where we are tied in by a computer system with their phones which automatically dials all of the residents over there about 24 people, and we can get a message to them in 15 minutes. Now, when we developed that, some people said why are we doing this. Why we are doing it was because of our chlorine plant and its proximity to them. To the folks over there. We didn't feel that they had a good emergency system. The municipality had one, Fort Saskatchewan has an excellent one, where they practiced all the time, but those people across the river were a little bit isolated from their emergency response folks and their equipment. But I kept on saying, well we've never had a chemical release that would have effected them and why are we doing this. The chances of anything happening are so slim guys and its going to be a real challenge communicating across there and to get them not concerned all of a sudden.

B - 228. INTERVIEW 4A (22: 12 - 17): But, you know, I can remember, people started saying to me, our engineers and some of our senior engineers saying to me, we're doing it because its a very slim change, because morally we have to do it. And I was just about blown away. Doug Catrin said that, our senior vice president on-site and that really just blew me away, it made me feel really good that they had those thoughts, and thought that way, it really ... so , that was one thing we did.

B - 229. Interview 35 (9: 47 - 10: 2): The other thing is, as the kids come out of school, they have a totally different opinion of what's going on than what I may have or what my parents may have thought. My parents don't really think there's a big problem. To recycle stuff or drive more efficient cars isn't important to them. To me it's more important, and to my kids it's even more important. So. when they start coming into industry, and they're becoming young engineers or coming out of the tech schools, they are the ones who are going to be the public opinion.

B - 230. Interview 35 (4: 44 - 48): When you see it, that's really part of public perception. The company would like you to think it's the right thing to do, but from what I've seen they'll tell you that, but that's really not, um, it's the right thing to do if it fits in with what they want to do.

B - 231. Interview 35 (3: 21 - 25): The company is still run out of the US, no matter what you think. Everything is controlled out of the US. Our managers here answer to those guys in Midland, that's where the head office is. Whether you like it or not, that's what happens.

B - 232. INTERVIEW 9 (1: 11 - 15): This is our fifth annual environmental progress report. And we've had it around for a couple of months. You probably should read this if you want to get a sense of where our company is coming from in openness, communication, and particularly in environmental issues and emissions. And what our plans are.

B - 233. INTERVIEW 4A (5: 28 - 32): We had some local home owners who were not entirely happy with the situation (the expansion) and we worked with them sensibly and in one case we actually bought three homes and relocated the people. And we felt that we had to because they had been here long before we were. We couldn't really argue in that case.

B - 234. INTERVIEW 4A (21: 36 - 22: 8): I mean. some of it (environmental behavior) is not altruistic, but some of it is almost a moral issue if I can be that grandiose. For example one things that we've done, for a community across the river, we have developed an emergency system where we are tied in by a computer system with their phones which automatically dials all of the residents over there about 24 people, and we can get a message to them in 15 minutes. Now, when we developed that, some people said why are we doing this. Why we are doing it was because of our chlorine plant and its proximity to them. To the folks over there. We didn't feel that they had a good emergency system. The municipality had one, Fort Saskatchewan has an excellent one, where they practiced all the time, but those people across the river were a little bit isolated from their emergency response folks and their equipment. But I kept on saying, well we've never had a chemical release that would have effected them and why are we doing this. The chances of anything happening are so slim guys and its going to be a real challenge communicating across there and to get them not concerned all of a sudden.

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B - 236. INTERVIEW 4A (14: 10 - 14): Off the river is one, perhaps (cost without benefit for good environmental behavior). Perhaps. Another one we hope to have in place is our power and utilities plan. We have a program right now, the numbers are rough, but about a ten million dollar emission reduction program on our nitrogen oxide. And there is no return for us, its just that we shouldn't be emitting it. It has an impact on the environment.

B - 237. INTERVIEW 29 (13: 6 - 11): In the long term, who knows, they might be right or wrong. I'd like to think in the long term what firm B and some of the other companies are doing is the right thing. Put the money out. Do the right thing. Advance the technology and try to enhance the environment as much as we can. Make sure we do things as safely as possible.

B - 238. INTERVIEW 4A (23: 4 - 9): Some of those examples I gave you, those were horrible experiences horrible legacies the company went through and think we've learned from those horrible legacies. What to do right with communication but they didn't drive us to suddenly become much more proactive in our communications. We just realized that our public image just needed to be vastly improved.

B - 239. INTERVIEW 29 (4: 1- 9): In order to achieve all the things in the strategic blueprint, you have to have the kind of environment whereby you are doing all these things. People who are following procedures. People who are doing things safely. People who are thinking about things before they do it, are the type of people that fit into the culture that makes up the strategic blueprint. so you bring it all back into line. So, in a corporation, it goes through changes and what have you.

B - 240. INTERVIEW 29 (2: 50 - 3: 3): Zero accidents is not a goal it's a culture. What he was saying was to get it out of our minds that we are striving for zero incidents as some target or goal. Zero incidents is a state of being that we want to be at because if you are at that level of perfection, you will be the best when it comes of all of the other things that we do.

B - 241. INTERVIEW 4A (4: 1- 7): Yeah that's right. Its a great time to be in this field, in the Chemical Industry, at least at firm B because you do have senior management buy in. This is not something you have to sell them on, you don't have to sell them on talking to the neighbors. Our senior Vice President out here can be convinced that he has to come and visit with our community advisory panel that we have and we meet with them every other month. Its a group of twelve local citizens. He comes at least once a year and sits and listens to their concerns.

B - 242. INTERVIEW 4B (11: 24 - 30): I mean, if you don't have incidents and you don't have chemical spills and you don't pollute then your costs are lower, your people are happier, the communities of course are much happier, and the government starts to trust you more when you go to work with them on what should the regulation be then you have a much better chance of having a reasonable approach, to regulatory affairs. Its so much connected to that safety analogy that people can sort of relate to it. But on a broader scale.

B - 243. INTERVIEW 4A (3: 27 - 35):Firm B in Alberta got on board primarily because we view ourselves, just because of our sheer size and position we are starting to assume in the world, we felt very strongly that we had to take a leadership position on this in Alberta. And I don't want that to come across arrogant or anything, but we just felt that we had the resources and the size we needed to do that. And to help other companies if called on. So, what started to happen was that our senior management got on board, they were the ones who started to drive this, which was wonderful, as I've often said to people who sometimes pity me for working for a major international chemical company

B - 244. Interview 35 (6: 37 - 43): So in ten years time you find out that the new one is worse (new product to replace a known damaging chemical). So firm B has basically come out and said "That's irresponsible. What we should do is look at each chemical individually. If it's bad we'll take it off the market. If it's not, we should leave it until we prove it's one way or the other, or wait until we can come up with something that's better." Is that a bad strategy?

B - 245. Interview 35 (11: 34 - 44): We would really have to change the way we live day to day. It's going to take a long time now. You see the little changes and I think we're capable of it. It's the same with the CO2 emissions. It starts out and everybody ignores it until it gets pushed more and more and you realize it's a problem and we've got to do something about it before we have a big climate change and stuff like that. But, will it get to that point before we change it or will we change it before? If we put all the money that we spend on defense into environmental, I think it would be amazing what we could come up with.

B - 246. INTERVIEW 29 (3: 40 - 48): There tends to be a trade off. What has happened is that we've seen safety performance and quality of environmental performance slip from the level we were at, or we thought we were at. These are subtle changes in numbers, but you can see them over time. In my job, I have to be careful I don't cry wolf when all we've got is some normal variation in the system. I have to wait and see. It's taken a couple of quarters to update it and see that there has been an influence on our performance.

B - 247. INTERVIEW 29 (3: 48 - 54): It is interesting the reaction, once you can kind of show data that we are slipping. The reaction is amazing. The core values come through again and we start to say that there is no question that we have to do all things in the strategic blueprint, but it cannot be at the expense of safety. Safety still has to be the number one priority.

B - 248. Interview 34 (5: 32 - 37): The environmental is almost the same as safety, where safety is an assumption. You look at the job from a safety standpoint, and then from an environmental standpoint as well. If you have to dig a ten foot hole, you also have to make sure that the ground won't get contaminated.

B - 249. INTERVIEW 28 (4: 41 - 5: 6): Environmentally speaking we have a thing called the Rainbow Book, which is basically a guideline in how to operate a plant. Recently we started, we grouped them all together and called them the Operating Discipline for all the ten units that we have, and this is a global perspective, this has come down from global and they are saying if you operate a plant there are I believe thirteen section in Operating Discipline that they have to follow, because Operating Disciplines are a must and all you have to do is report from 1 - 5 under this OD book. There is an Environmental section, there is an occupational health section, there is a safety section together with the rest of Producing Products section and they have to do a self audit, they check from 1 - 6 and the sixth is thou shalt have very close to the ISO thinking. We have Procedures, you have Training, you have checked your procedures and you have verified everybody's paths, and you have a continuous system to double check that type of thinking.

B - 250. INTERVIEW 28 (5: 14 - 18): The standards do not vary because you have this book and the operator's follow this book. The operator does not follow the twenty year supervisor who says I've always done it this way and you will do it this way, but the next time you'll have a young guy that is more aggressive saying you need to protect the environment and you're not supposed to do it (the way the supervisor said). So he won't be confused you see, because everybody will operate the same.

B - 251. INTERVIEW 28 (4: 32 - 40): I got an interview with firm B and the guy told the firm B philosophy, you know how they do things their code value for firm B employee ethics. We will try our best to make sure you understand there is a necessity for regulation, because we do have across the board regulation, and firm B at that time have a ... tendency to do a lot better than the regulation requires and that is called the firm B standard. There are firm B guidelines in Safety, there is firm B Safety Standards, there is Loss Prevention Guide and Principles, there are Occupational standards. Everything has a firm B label, and if I piled them all up they would be longer than three feet in all these disciplines.

B - 252. Interview 34 (5: 37 - 47): (Values being taught?) It's a consideration in the day to day job. If 2 kg are spilled, that's not very much. In the old days it would just be hosed down into the grass or the gravel. No one will ever know any better. Now, it's like you better report this because someone will find out., You can almost hear it being said. It's a pain in the ass to call and say that we've spilled two kg of solvent because this or that happened because then we have to do a two or three page report on the computer of suspected source, wind direction, weather conditions and so on.

B - 253. Interview 34 (5: 5 - 11): I think a lot of it is that they want to report everything to the government because the government said you have to report this, this, and this. The environment group here said we're going to report everything and maybe they'll get fed up and say we only have to report this small area. So either they're covering their bases or they're playing a game. I don't know.

B - 254. Interview 35 (1: 50 - 54): Environmental Services is only the interface to the government agencies. That's all they really are. If someone from Alberta Environment phones up they always talk to the same person, otherwise it's difficult for the government people as well as the company people because they don't know who they are talking to.

B - 255. Interview 35 (1: 44 - 50): No, actually, each unit on site is responsible for the chemicals they produce. So, if there's a spill, they have to clean it up. They are fully responsible even if it's not on their block. If it's their chemical. they look after it. The unit writes up the report about what happened, how it was cleaned up and that just goes through Environmental Services.

B - 256. Interview 35 (2: 46 - 48): So, they've changed it that way. If you want to get money for a project, it has to go through that business team now.

B - 257. Interview 35 (3: 1 - 7): For example vinylchloride. They deal with all the plants that make that in North America. I'm not sure if that's global. Each one is within that team. Then they compare the Texas operation to Sarnia us and they say "You're too expensive. We can make that same product here for so much." So you have to do something to make it more competitive.

B - 258. INTERVIEW 9 (6: 10 - 15): We're able to make more decisions locally. Basically all the decisions that relate to our relationship with the community. And we need to make these locally. And we do. I'm sure there is some checking and some communicating, we don't do this totally in a vacuum but if it's good for the community and good for the plant then we'll do it. If a major project is involved though you need to go through the regular routine of approvals.

B - 259. INTERVIEW 4B (17: 28 - 29): So there will be variation between facilities, even within companies. They will all be meeting a very high standard.

B - 260. Interview 35 (3: 37 - 41): Canada has the benefit because we have the regulation because we want them as people who live here. I don't want them dumping a whole bunch of crap out the back and the same with the air. I live here.

B - 261. INTERVIEW 9 (3: 32 - 34): (Why both economic and environmental performance?) I think it's because of our sensitivity to the communities where our plants are, and where we live. We as employees also live in these communities, and you want to work at a place that has excellent environmental performance.

B - 262. Interview 35 (9: 36 - 38): The knowledge comes from what the public is hearing and seeing and all these things we keep hearing.

B - 263. Interview 36 (3: 33 - 38): Our employees are part of that society. So, from both sides, the members of society that work for you and those that don't, there's that image that you have to project. If you're being sloppy here, the word is going to get outside the gates and Firm B's got a bad enough image as it is.

B - 264. Interview 34 (11: 9 - 13): That don't say that we're a spokesperson for firm B when we're not at work. If they (executives) said that, I wouldn't do it. They like to keep them up to speed because then they can answer questions. It's not like you're in your unit and you don't know about anything else.

B - 265. Interview 34 (7: 46 - 54): I'm kind of a Headline News and CNN junky. You can't not see something on those channels or on ITV with their "Getting Green" section. Firm B has actively supported that by having experts come in from off site, telling you how to do proper composting. They have an environmental awareness week as well. They'll make everybody aware. Like with the chlorine thing is a big issue right now with Greenpeace. They've had things on the computer about question and answer session.

B - 266. Interview 35 (10: 2 - 12): Obviously, firm B like any big company, puts out propaganda. With most of the issues, they will come and release the information to the employees. They basically say they want us to be knowledgeable and know what's going on because when it's released to the public, people will come to you and say "You work for Firm B, what's with this new regulation?", and you look pretty stupid if you just stand there. So they give you the company's view of what is happening. They're giving you one, so if that's all you take and you go out and say that's the way it is, that's up to you.

B - 267. INTERVIEW 4B (4: 31 - 39): It also causes the communications issues to be divided between the ten or twelve managers at the site. In fact all of the managers at the site are involved with one two or three of these so its a tremendously effective way of insuring that action occurs. Its not just on one or two people like the public affairs manager, it is really spread out, and really much more effective

B - 268. Interview 35 (7: 45 - 50): I live here. We have to suffer the consequences. They're not going away. You can't bottle up these air emissions and even if you could they would come back anyway. You can't just bury the waste. It's not going to go away. So, I think I lean towards the environmentalist side as opposed to "the company can't do anything wrong".

B - 269. Interview 35 (7: 26 - 29): Well, firm B is basically about people. So it goes back to the whole thing of public perception because everything drives what the company does. I don't think there's a company in the world that is not based on that.

B - 270. INTERVIEW 29 (1: 16 - 24): Firm B very much supports people hiring on and staying with the company a long time. I think it's a good organization and that's part of the reason. They have some very definite core values that are well communicated and supported by top management. You can feel very comfortable within the corporate structure that you're doing the right thing for society, yourself and the company. That makes a difference. You don't find yourself in conflict personally with the company goals that often, if at all.

B - 271. INTERVIEW 9 (3: 32 - 34): (Why both economic and environmental performance?) I think it's because of our sensitivity to the communities where our plants are, and where we live. We as employees also live in these communities, and you want to work at a place that has excellent environmental performance.

B - 272. INTERVIEW 4A (4: 7 - 17): On top of that, we have designated a senior production engineer to sit on every meeting, and to be the person who goes back and talks to our senior VP and gives him all of that information. So that they are being listened to. So in 1985 86 we started to look at tour programs, invite people inside, to the plant site. We in 1986 started to look at the school program. Though it didn't actually get off the ground until 1987 it started to develop in 1986. We um we rewrote a lot of our information inside, our newsletters and all that went through a great transition. What were they accomplishing, were they doing much? We started to do a regular video show, because we felt that not only was it important to talk to the people outside, but we needed to look at employees in here. If they don't feel good about working here, and they go back to their communities and communicate that:

B - 273. Interview 34 (11: 4 -5): I think they like to use the employees as a spokesperson with your friends and families.

B - 274. Interview 36 (6: 1- 7): Yeah, there was communication put out on what it was and what was going on. For the operators, we went over there and talked to them and asked how everything was going, so it was an open communication with them all the time. Everyone had e-mail, but we knew more about it because we talked to those guys. We knew all the problems that were going on. I know they talked to anyone who lived nearby.

B - 275. Interview 36 (6: 19 - 23): Do they (management) expect it? No, but I think they would like it. It's part of their plan or strategy. They keep us well informed and then we are almost encouraged to tell people. They hope by treating us well, we'll be a good spokesman for them.

B - 276. Interview 34 (6: 42 - 47): (employees get credit for ideas?) Yeah, it all comes back. It's part of their new concept of motivated, empowered, productive employees. They motivate you by giving you the empowerment to make a change. If you make a suggestion, we'll route it through some channels and then it will come back to you. So, in the long run, it's a lot of work.

B - 277. INTERVIEW 28 (7: 1 - 5): They are all there, it is one of those lines when you do an evaluation. So it is not forgotten when we go and have a corporate review with all the employees. And they would sit down and say you can't skip this box and skip that box because it is all part of the review that you fill in. What have you done to achieve environmental standards? What needs to be improved? They ask those questions so they cannot be missed.

B - 278. INTERVIEW 29 (10: 6 - 18): If I was ever prosecuted or taken to court, it would probably mean that someone in our organization didn't do what the organization told them to do in the first place. Or maybe it was just a technicality. Now, you can get into situations where you're doing everything that you possibly can and you have a hiccup and you get fined. Well, that just gives everybody a lot of bad press, for one. Economically, it probably doesn't have a major impact, directly. Indirectly it can. And, it may or may not have been something that at the time really justified that kind of exposure.

B - 279. INTERVIEW 4A (26: 18 - 34): You talk about employees being key stakeholders, that's right they are probably number one I would say. Firm B does treat its employees very well. And I don't mean that in a paternalistic way. For example, I think this is public information, we usually get a bonus in early in the new year, based on how the company has performed in the past year but there is a personal portion and there is a company portion. Well, the company had a pretty good idea at the end of 1993 that we probably wouldn't qualify as a bonus period so what they did was, they looked at it, and they said, you guys have pulled in your heart so much and literally saved hundred of millions of dollars for this company in the past year in terms of budget, worldwide, that we are going to give you your personal portion regardless. And, some other people out there they would just plow it back into the company. I think that is remarkable, and what I said to a couple of people is that I'm amazed that the stockholders support that right now. And it must say a lot about their faith in senior management and how they can motivate people, and they probably looked at the bottom line and said "yeah, you did improve a lot" and I view that as very innovative. We're not talking about, for most of us, major dollars, but its a symbolic gesture more than anything. So its a very good company.

B - 280. INTERVIEW 28 (6: 36 - 7: 1): Firm B has a tendency, actually it is a common practice to hire them fresh from school ... they don't like people with other experience. They like to take them right fresh from school. Now-a-days the most popular is the co-op programs ... they train them, and they believe that they have trained them right, from the basics, and they import on them the firm B Core Philosophy. The Environmental Protection is always in there....

B - 281. Interview 34 (7: 15 - 18): No, I wouldn't say I know the whole environmental policy. I know what I need to know. I don't really have the desire to know more because I don't have an interest. It's very dry to me.

B - 282. INTERVIEW 4A (33: 12 - 14): Yes. To be in the CCPA you are not unionized necessarily. I don't know, I never hear about them as a group that is interested in some of the issues that you've talked about.

B - 283. Interview 35 (8: 22 - 24): They say they will be off the river by the year 2000, so we don't need to fix this. There won't be anything going to the river.

B - 284. Interview 35 (8: 1- 13): Well, the company does some things that I'm certainly not happy with. ... Some of the things are things are aren't illegal or anything, but I would certainly like to see. Like now in water. You have emissions that are going out to the river. They're licensed and they are perfectly legal and we're not even close to what the legal limit is, but when I see what's going out. I'd like to say that we could be better. Maybe only half of what's going out. Certainly, I'd like to see that. You're not doing anything, so why should we fix it.

B - 285. Interview 35 (2: 36 - 41): I think that the government has forced the companies to do what they want. There's some things, like the CCPA, where they've said we're going to list all the chemicals we produce and how much is released to the air and the water, that's something that no one else has done...

B - 286. INTERVIEW 28 (13: 1 - 5): (the start of regulations) They came in 1970 across most of the country. In a lot of places before 1970, there was no regulation. You can do anything if you want to build this (facility). ... If people had today's knowledge and questioned somebody thirty years ago where would that (seepage) go, so maybe ten feet in fifty years from now and that's fine. But with today's knowledge, no.

B - 287. INTERVIEW 4B (25: 22 - 24): The same firm might make a different decision depending on the year too. Imagine doing that now (the closed loop system), it would be much tougher to do it now than when it was done three or four years ago.

B - 288. INTERVIEW 29 (3: 9 - 17): My job is not necessarily to achieve this goal of zero incidents. It's to achieve this process or state of being, whereby that's what we believe in. We believe in perfection and we believe that we can eliminate all of those kinds of things. That's a pretty big difference. So, our top management believe that and understand the value of that culture or state of being, so that's what we strive for.

B - 289. INTERVIEW 29 (3: 40 - 48): There tends to be a trade off. What has happened is that we've seen safety performance and quality of environmental performance slip from the level we were at, or we thought we were at. These are subtle changes in numbers, but you can see them over time. In my job, I have to be careful I don't cry wolf when all we've got is some normal variation in the system. I have to wait and see. It's taken a couple of quarters to update it and see that there has been an influence on our performance.

B - 290. INTERVIEW 28 (6: 9 - 16): I guess in our management, the principal is to walk the talk. I know the CCPA firms myself (in our area). ... If you take all the environmental managers and put them all in front of microphones, they would say exactly the same thing, they would tell you Responsible Care is what the CCPA is all about. Out there, their six codes of ethics.

B - 291. Interview 34 (2: 24 - 29): I think back when I first started here and firm B unearthed those 2-4 drums and there was a big thing about that. I was about 23 and didn't see the big deal. I didn't know much about chemicals. I think back about it now, and they were up front about it, which was quite admirable, so I've seen leaps and bounds (of improvement).

B - 292. Interview 36 (2: 18 - 33): That's one way we're more efficient now because of these analyzers that we've got on stream. We used to have lagoons and they were always kind of messy too. Supposedly, they've got liners and everything else, but they just looked like holes in the ground. We have lots of ground water wells in the ground to make sure that nothing is leaving, but now they have this technology that is almost like a swimming pool. They've got tons of concrete that's in the ground to support this thing and then there's like heavy fiberglass and that's where our acid lagoon is now. In the other lagoon that's our process lagoon they put in the heavy liner and they seam it together. There's no way anything can get out of it. We have wells to prevent it from getting into the ground water. It's still probably better to never have to pump water out of the ground water system.

B - 293. Interview 36 (2: 50 - 54): Then we got a vacuum header, about five years ago, where you can put just a small amount of nitrogen in the side of the vessel and then we don't even get one ppm out it. I'm sure when we started out, we're talking a couple percent and now we're down to virtually nothing.

B - 294. INTERVIEW 29 (4: 48 - 54): The other thing is it's good business sense if you can set the standard, first of all, if you believe that doing things well is going to pay dividends in the long run and you can set a standard that your competitors have to come up to, then that helps too.

B - 295. INTERVIEW 28 (17: 38 - 17: 44): Firm B believes in it that being very good environmentally speaking would certainly improve our competitive edge like in the long term. And firm B was the first chemical company which used an incinerator to burn waste 75 years ago, and therefore when the first EPA inventory comes about, in terms of who has the least waste stored or something like that, firm B has the least waste stored because we had burned it all, or we burn the majority of it and will until the rule changes. If the rule changes and it's who produced the most, firm B would be way on top.

B - 296. INTERVIEW 4A (17: 35 - 18: 2): We don't want to do that (to force behavior upon other firms). We have to walk a very fine line you know, and I think I've said it to you earlier, I hope we don't come across as arrogant or smug. You don't really convince other people that they have to move on to emulate you or even try to better you. ... You're really going to work if you can tell people that you're on board, that you've all got challenges. We've got our own challenges. Some companies are happy that they are not producing chlorine right now because it is a tough one. Having Greenpeace globally behind you is not fun.

B - 297. INTERVIEW 28 (5: 18 - 22): Other companies, I would say whoever belongs to the CCPA, the bigger ones and oil refineries, they should have similar things, but how vigorous they are in implementation I don't know. How detailed it is varies and of course whoever writes those books have to have regulation on their minds also. Not necessarily reading up on detail, but at least the principal part.

B - 298. INTERVIEW 28 (6: 20 - 24): They (members of the CCPA) would all tell you there is the cradle to grave concept. They are all going to say that... It comes FIRM Bn to the question that the reason that I tell you about the history is the management support which reviews the operating disciplines, enforcing it with support. That is the part that starts to fall down. Things can be written by the corporate (office) and everybody has a book.

B - 299. INTERVIEW 28 (6: 9 - 16): I guess in our management, the principal is to walk the talk. I know the CCPA firms myself (in our area). ... If you take all the environmental managers and put them all in front of microphones, they would say exactly the same thing, they would tell you Responsible Care is what the CCPA is all about. Out there, their six codes of ethics.

B - 300. INTERVIEW 9 (3: 16 - 21): Also, in our associations, there is a fair amount of sharing of performance data with respect to environmental quality, and that I'm sure, helps move the average up in terms of performance. We don't share competitiveness data, with respect to product pricing and those sorts of things. We tend to share environmental performance so that other companies can benefit from our successes. And that's important.

B - 301. INTERVIEW 28 (3: 43 - 4: 1): I work with industrial organizations here because I'm part of this. I'm in the FSRIA. I'm in the CCPA. So I observe them myself in terms of the various environmental behaviors because we're quite open and honest and honest with each other.

B - 302. INTERVIEW 9 (4: 1- 4): We've done surveys that say that truly excellent performance is recognized by the public perception, you know. But let's face it, if the average, or if there are some problems within the industry, that will reflect poorly on the whole industry and you will get excessive regulation, and things that we don't want and don't need.

B - 303. INTERVIEW 28 (17: 22 - 28): Industry always works together. We would directly approach them (a bad performer), using the association. FSRIA would have a Board of directors meeting in there, and everybody is in the know. There would be a friendly discussion that would apply unknown pressure not directly, because we have not control over anybody else. In saying this particular spill really impacts on FSRIA, which we are all part of. It would be good if we could somehow minimize the impact on our images and our future doing business.

B - 304. INTERVIEW 4B (11: 39 - 41): That is why we are leading because we want to bring every company up to a certain standard that is acceptable or more than acceptable to the community. So we can stay in business, and our employees won't be injured, and or environmentally damaged.

B - 305. INTERVIEW 4A (22: 36 - 23: 3):And you know, you talk about businesses being short-sighted, government, yeah there is some of that, always, but I think in this business we are trying to think long-term and say ok in 20 years what is this industry going to look like, and it could be so different in such a punitive way that many of us may decide not to build plants or do any of that, and from my standpoint, I have such a feel now for what the Chemical industry does out there for all of us, for our quality of life and what would happen if we didn't have it that I'm strongly committed to having some kind of future for this industry, and I hope a progressive one. That's where I think we're coming from, this is where the whole company comes from globally.

B - 306. INTERVIEW 4A (30: 9 - 11):Because you always want to leave that door open. If you can adhere to our standards we would sure like to have you back. You really want people back. You really don't want to hit people on the head

B - 307. INTERVIEW 4A (17: 20 - 24): Yes now this is a discussion that we got into on our community advisory panel. What this responsible care says is that everyone has to reach a certain standard. If you a company, now that standard would not be that everybody has to have zero discharge into the river, if they developed a new plant, but everyone has to operate at a certain level. A certain standard.

B - 308. INTERVIEW 4A (3: 16 - 27):And Responsible Care, ... is really six different codes of conduct. How the Chemical Industry conducts itself. Now some people have confused Responsible Care as a public affairs kind of an issue. It makes us look good, and its sort of a sugar coating, its not. Its not, at all. It really is a series of procedures, rules, parameters, regulations that all CCPA members have to live up to, and if they don't they are turfed. And, if you look at our membership numbers from even a few years ago, our membership has not been going down significantly, but there is no doubt about it that this is a challenge for some of the companies out there. And the thing that I like about it from my standpoint, the public affairs field, is that this is not a do-good thing where people can or cannot buy into it. They have to, or they will not be CCPA members. So, Responsible Care started this whole thing in 1985.

B - 309. INTERVIEW 29 (4: 46 - 48): You've got to remember that firm B chemical was probably the prime factor in the development of the CCPA. One of the people who worked for firm B ... one of his last big efforts before he retired at firm B Chemical was to put together the CCPA.

B - 310. INTERVIEW 29 (8: 31 - 44): We just had our third party notice. That the CCPA conducted. It was an outstanding response. The words were something to the effect that we were setting the standard. Total endorsement of what we do, which is what we would expect. The CCPA codes of practice are fully integrated into our management system. You won't find the CCPA codes of practice on my shelf. You will not find that document. The reason being is that what we've done is gone through and made sure that if we're talking about having some kind of system in place to do something, we check it if we have that covered in our systems. We cross-reference that way. We don't have to flip from what firm B does to what the CCPA does. What firm B does is what the CCPA says we should do. That's the way it works.

B - 311. Interview 35 (2: 36 - 41): I think that the government has forced the companies to do what they want. There's some things, like the CCPA, where they've said we're going to list all the chemicals we produce and how much is released to the air and the water, that's something that no one else has done...

B - 312. INTERVIEW 4A (12: 15 - 22): We helped the government to actually, when we told them that we were thinking about doing that, because we could see that it was already being done in the States. And we felt, why not get on board and try to do something here before it is legislated. and so that's where our National Emissions Reduction master plan, its called Reducing Emissions, in five years, and now the government, the Federal government has got one coming out next year. Called the National Pollution Release Inventory, and it will cover all industries, and they did look at ours, our voluntary one, and how we developed it, for legislation.

B - 313. INTERVIEW 4B (16: 38 - 17: 3): I think that with the developing countries though, that that is a genuine concern, that those countries. as they develop Industry for export will be tempted to take a short term view and possibly not put in all of the environmental protection that we would. And I hope that the NAFTA , I mean I was really happy to see the resistance to just signing that the way it was originally drafted. Without the resistance based on the concerns that were expressed. The treatment of the workers and the treatment of the environment I think there is enough in there to cause that to be ok

B - 314. Interview 35 (12: 39 - 43): But on a global basis, if we clean this up perfectly, that's not going to make everything else go away. I'm of the opinion that we need to have regulations globally. If we don't do that it's not going to make any difference what we do here.

B - 315. Interview 35 (6: 17 - 21): I would agree where maybe we should take all this money and spend it in Brazil or Mexico because we would get more out of it. With the same million dollars, we could reduce a thousand pounds of emissions where here you might get a hundred pounds.

B - 316. INTERVIEW 29 (9: 2 - 6): In the States they almost have to have designated contacts for the regulators because they're dealing with the regulators 24 hours a day in some locations. That's just an unfortunate situation that's developed in the States with the way OCEA and the EPA operate.

B - 317. Interview 35 (3: 41 - 50): I found in Texas that there a lot of uneducated people. Mexicans come across the border. One of the questions on their indoctrination was if they could understand English. I never would of thought of asking someone that, so we've got educated people (in Canada). We've got good infrastructures built up. We've got all this stuff that is here already, so that keeps your costs down. If you go to Mexico there's nothing. You have to build it all up. So, I don't think they're going to shut us down.

B - 318. Interview 35 (13: 36 - 37): When I look at other countries, I think we're far ahead of them.

B - 319. Interview 35 (7: 18 - 22): I'd like to think we live in a country where we're trying to make sure the water and air is clean. I'd like to think we live in a world that's like that, but when it's not a lot of the things that go, you start to see that it's not like that. We're going to have to change the way we think.

B - 320. Interview 36 (8: 33 - 39): It's kind of like Russia and all the nuclear waste they've dumped in the ocean. Compete at any cost. I've heard about some people in the US who smuggled in some Freon on the black market. Human nature in North America has got to change. We have to stop being so greedy. Otherwise, they are going to start cutting corners and do stuff cheaper if people aren't going to buy it.

APPENDIX C

SELECTED DATA QUOTATIONS - FIRM C

C - 1. Interview 48 (4: 7 - 12): We look at it as we have four stakeholders, which are equal partners in the business. Shareholders, employees, customers, and the community is the fourth. We have a responsibility to the lot of them. We're all in it together. If our customers, for example, are successful, then we're both going to grow together.

C - 2. Interview 47 (2: 20 - 23): I've learned a lot, especially a lot about the chemical industry. There's a lot of misunderstandings and clouded perceptions of what happens in the chemical industry.

C - 3. INTERVIEW 17 (4: 30 - 32): It has to be more than that (perception). What we also don't take into account I think is the public has higher standards as well. If we were doing a rotten job here I think not only the public would be displeased but everybody on site would be displeased.

C - 4. INTERVIEW 20 (13: 6 - 20): If we could not run this plant and be in environmental compliance with the neighbors and our permit, you know, the neighbors first and then our permit. Any neighbor that has valid evidence, any neighbor around any chemical plant that has valid evidence of pollution or disregard of the environment can shut a plant down just like that. I'm convinced of that. I know if I was a neighbor I could probably do it myself. You ... You could probably put a hell of a lot of pressure on that plant to shut it down if you wanted to. We're saying: Gee, that doesn't sound like the kind of environment that we want to operate in if we are really concerned about being competitive in a business sense.

C - 5. Interview 47 (4: 31 - 33): I think they (customers or community) set standards. The community is very informed and very interested in what happens in this site. They definitely play a part in efforts we pursue.

C - 6. INTERVIEW 11 (11: 25 - 39): There are a lot of difficulties, like we talked earlier, in just reaching the community. I gather, just from sitting and talking to my neighbors, I've been with this company for thirteen years and I've been in five different locations, is that when you sit down and you can talk to people and get to actually sit there, you can sort of reason with them. Most people are not, unless there is somebody in the group who is an avid member of the real strong environmental groups, of course we've got our communication problems there, but obviously, for most people today anyway, it's not number one priority. You know, if they have a choice like I'm renting a VCR or going to a hockey game, ... obviously, it's not a high enough concern that they'll come out and talk to us.

C - 7. INTERVIEW 17 (4: 5 - 9): I think as far as the CCPA and Responsible Care is concerned, it would follow from Bhophal in 1984 or something like that. It was a number of things, like Bhophal, Three Mile Island, and all that stuff, a couple of chemical disasters if you like, and I think people and governments started asking more and more questions, and so I think that is part of what drove it.

C - 8. INTERVIEW 11 (1: 43 - 47): There's a number of things. You look at ourselves and

firm D and society becoming increasingly conscious. It was obvious that society was not accepting that and lots of cases involving freon or CFCs and the effect on the ozone layer, the greenhouse effect...

C - 9. INTERVIEW 11 (9: 39 - 46): And it could be things like buy locally (community concerns). They (the community) don't want us doing our business with all national firms. They like it when we get our dry-cleaning done by somebody in Redwater. We hired an industrial guy from Newburg to do some work and they liked that because you keep him. The More people are buying houses, sending their kids to school, paying taxes. But of course, there aren't very many communities that like a lot of smoke stacks.

C - 10. Interview 48 (4: 12 - 19): We help the community by way of donations to help educational things like Block Parents and the library. We also host a lost of visits. One was an association of farmers form all over the area. We talked about what we're doing. We want to keep them informed. So, in turn, when we talked about an expansion, they were happy to see that. They're not fighting it.

C - 11. Interview 47 (7: 14 - 27): I'd say that with our site, and I'm biased, we definitely influence the community more than the community influences us. I'm thinking in regards to the fact that we don't have any activists on our doorstep and we've really spent a lot of time in our interactions with the community to educate them in regard to our product and that it is a more environmentally friendly product. Another example of the carry over and how we influence the community is that there's another technician on site whose daughter is in elementary school in Fort Saskatchewan. Recently, her and eight other kids started up an environmental group and they're focusing on all the plants. They've asked her dad to come out and talk to the kids. I just see that as an influence.

C - 12. Interview 49 (4: 42 - 48): It's become more and more apparent that industries that have bad reputations with the public; and that maybe fact or perception ... it's sometimes just an issue that the media latches onto that somebody's got an axe to grind. But the media, acting as the public's conscience, can put pressure on industry through informing the populous.

C - 13. INTERVIEW 11 (3: 10 -12): It's bad business to be bad to the environment. You look at Bhophal and what that did to Union Carbide.

C - 14. Interview 48 (8: 1- 13): And then there's orientation to the way we think: our beliefs, philosophies and principles. There is an opportunity to get aligned with that. There's also continuous training. People have to understand the consequences of their actions. The reason I do things is because I'm expecting a consequence. If I'm trained to the point that if I know if I dump this barrel of chemicals, I can expect this to happen, it will cause me to behave in such a way that it won't bring about that consequence. On the other hand, if I'm not educated, I might do things that are harmful. I think in a lot of cases, people will do the right thing, if they know what the right thing is.

C - 15. Interview 48 (7: 4 -5): Well. we know that unless the stockholders get a return, there won't be a business.

C - 16. INTERVIEW 20 (15: 51 - 16: 2): You have to make money to survive because why would people come to invest money in a chemical plant when they can, even though interest rates are low, you can still go out there and find a guaranteed eight or ten percent investment.

C - 17. INTERVIEW 11 (8: 18 - 20): There's no question that's the challenge. I mean, we could become the most environmentally friendly company in the world, and go broke in the process.

C - 18. INTERVIEW 17 (6: 4 - 8): I think that has been proven in our safety culture, our safety vision and also that safety pays, that it's a bottom line thing again. I think that here some companies don't have the same vision or the same perception that by spending money now to prevent that safety incident or that environmental incident you are going to save money in the future.

C - 19. INTERVIEW 17 (2: 13 - 18): I think it is the public, the customer, the public perceptions and pressures, environmental pressures. I think the realization is around that it makes economic sense to do, to reduce waste, to minimize waste generated by the processes, and to handle that waste properly, because if you don't handle it properly you'll get fines, and clean-up costs, and so I think it is the two pressures in my mind that drive it, having better management of the environment.

C - 20. INTERVIEW 20 (14: 44 - 15:2): But the leak could have other ramifications. If it's a hydrocarbon it could have a safety factor that could result in a fire. That means the cost might be five million. You may lose the whole bloody plant because it's just bad operating practice to lose control of your leaks and hydrocarbons. It could have an environmental effect. That leak could actually migrate outside the fenced boundary and become a contaminate to the community. So, when you look at all those things you say not only is it good business sense from an operations standpoint, it's just in line with all the values of how you manage this workplace. So, that's how we do it.

C - 21. INTERVIEW 20 (14: 32 - 37): If you think back to the whole future emissions, and we spend preventive type dollars in doing surveys and let's say it costs us

$50,000.00 a year. That's quite a bit of money. If if have one week where we have to shut down to fix that leak, it could cost us a million dollars. Is the $50,000 an acceptable cost?

C - 22. INTERVIEW 11 (10: 14 - 23): So, you know, what does the customer want. He wants good value. He wants service. But some customers, and again I say some, want a reputable consciousness. ... They don't want to be dealing, for any number of reasons, with companies that don't have good reputations. One maybe in today's environment when you are trying to form partnerships and it's hard to have a long term relationship with some guy who might be out of business next week...

C - 23. INTERVIEW 17 (4: 40 - 5:3): I think you may as well add the other stakeholder, and that's the shareholders and the Board of Directors. With the environmental legal implications now around charging the Board of Directors, if you don't have due diligence, the Bata people are still in jail. So I think that all four stakeholders (customers, stockholders, employees, public) have really pressured all companies, or at least our company.

C - 24. Interview 47 (4: 20 - 26): (Is the environment itself, a stakeholder?) Well, the community, which encompasses the environment. Certainly a business has to look at all the stakeholders and take them into consideration. They have to realize too, where their profit is coming from. If their customers are not happy with their environmental behavior and the community they reside in is not happy, they are not going to make money.

C - 25. Interview 49 (6: 47 - 50): Our goal is to achieve balance with our stakeholders. Have we done that? No. That's been proven time and time again. The customer's needs outweigh the balance of the shareholders and possibly even the community.

C - 26. INTERVIEW 20 (8: 12 - 25): I think there was a significant change in this company, FIRM C, around 1980. It all related to the understanding that the need to improve the relative position of your site. You really had to be more conscious and think differently about what you were doing. It was about that time that I started to be part of discussions that said: OK, to really enhance our relative competitive position in our country,our world, we had to start thinking of it from the perspective of the four stakeholders concept. Rather than just worry about the shareholders, we had to start being more concerned about our society and community. We had to be more concerned about our employees and we had to listen much closer to our customers.

C - 27. INTERVIEW 11 (3: 23 - 27): Few people may think about Exxon stations in the US, gas stations, but ... And of course there's always a risk when two customers are making a decision about whether they are going to distribute Exxon products or Shell products. You don't know what the impact is anymore of Valdez.

C - 28. Interview 49 (5: 3 - 9): We're seen as the leader in price increases because the pulp industry is doing well. But not only for price, but the conscience of the business has grown. It would not be price that would make a customer leave us. Like with Western, if we were not seen as a good neighbor, it would be in direct conflict with their own philosophy and they could not live with that.

C - 29. INTERVIEW 20 (24: 33 - 46): If you're staying flat, you're guaranteed your competitor is getting better. It's all focused on relative competitive position. To stay ahead, your rate of improvement has to be higher than the rate of improvement of your competitors, because they're getting better too. So, it's not a matter of a decision to get better ... So, that can really only say positive things for the future. Considering everybody's thinking about those four stakeholders. If we all do it, we will do all that and still meet the bottom line criteria. I know this side here has got that vision. If outputs don't continually get better, the cumulative output isn't getting better at a faster rate than our competition, then we've got a lot at stake.

C - 30. INTERVIEW 17 (7: 32 - 38): I think what Alberta Environment is trying to do is trying to develop this cooperative environment. Cooperative environment for work. And (they) put a lot of faith in the industry to be open and honest so that there is not as many people coming around asking if you're open and honest, but so if they do find someone who is not open and honest they will really come down hard. and so as I said even though there are people to regulate it, they are counting on industry to regulate themselves based on the standards. Self-regulating.

C - 31. INTERVIEW 17 (7: 7 - 8): I think it is the firms that are not cooperating (with the regulators) that are having problems. And that's fair.

C - 32. INTERVIEW 11(3: 4 - 7): Yeah, they're (regulations) getting tougher, no question. Even in Alberta with all the talk, it's one of the toughest places to operate in because of all the restrictions.

C - 33. INTERVIEW 11 (2: 50 - 53): ... the recognition that even if we could get through today's standards, the fear is that ten years from now, or ten years from then, society just may not accept it, society doesn't tolerate it.

C - 34. INTERVIEW 20 (6: 39 - 41): No question the chemical industry has a little bit of work to do in regards to cleaning up it's act. Either from a perception standpoint or a reality standpoint.

C - 35. INTERVIEW 20 (19: 44 - 20: 4): If there is an industrial accident, anywhere in the world, we have a lot of information flowing into this plant from all of firm C and non-firm C companies from all around. Environmental incidents, fires, accidents, whatever, and we share them as openly as we can with everybody in this organization. When there's a fatality in a chemical plant in France that we find out about, people in this plant really feel bad about that. They feel angry about it too because in most cases those sort of things result from bad decision making. I know if they could, there would be some people who say: Gee, I wish I could go over there and help those people. First of all, I don't want people getting killed. Secondly, it's going to impact the whole perception of the chemical industry. That's my work and it's a threat to my work.

C - 36. INTERVIEW 17 (11: 10 -13): I think it is a combination of both (Leadership vision and economic concern). I think that our CEO has said ... I think there is a lot of leadership vision and culture there around environmental activities, but as I said before the economics are certainly driving it as well.

C - 37. INTERVIEW 20 (15: 11 -12): (question about environmental behavior that had no economic benefit at all?) I would say there's no direct economic benefit but there's lots of benefit.

C - 38. Interview 47 (3: 7 - 15): For me, it's personal values. There are morals that I have and I bring them to work. Having a group of people that believe the same thing is really what makes it happen. Outside the work, I'm also an avid recycler and I read a a lot on the environment and so I think it's bring a group of people with the same morals. They bring the same type of ideas which is a respect for the environment and a desire to understand how we are affecting it and trying to work with it.

C - 39. INTERVIEW 11 (9: 16 - 21): You should watch these guys when they are out there with their families and stuff. I have a couple of employees who are my neighbors and you should hear them talk about... this is really neat to be able to talk about this stuff. I work for an environmentally friendly place.

C - 40. Interview 47 (3: 48 - 51): I just believe that if they didn't have the same values, they wouldn't be there. There's a lot of, sort of peer pressure.

C - 41. INTERVIEW 20 (3: 32 - 37): The direction of the values, the fundamental values, come from the corporation. We do have guideline documentation that says: Here are the corporate values, the ones we cherish here ... when we started putting together the organizational concept for Gibbons, we said: What are the really important things.

C - 42. INTERVIEW 11 (8: 7 - 10): I guess the first step is the whole visioning process. We say safety and care for people and the protection of our environment and you can read the rest, that's part of our code. It's really easy to write vision statements.

C - 43. INTERVIEW 20 (7: 33 - 38): So, I think the whole concept of what has triggered us is regulation, the public, the corporate consciousness, individual values. The sum of all of those. But I think from my experience it's been driven from corporate consciousness. firm C wants to do the right thing as a company.

C - 44. INTERVIEW 11 (11: 25 - 35): There are a lot of difficulties, like we talked earlier, in just reaching the community. I gather, just sitting and talking to my neighbors, I've been with this company thirteen years and I've been in five different locations, is that when you sit down, you can sort of reason with them. Unless there is somebody in the group who is an avid member of the real strong environmental groups, of course we've got our communication problem there, but obviously, for most people today anyways, it's (communication) not a number one priority.

C - 45. Interview 48 (4: 25 - 26): I guess what I'm trying to get at is that they know that we're working together (firm C and the rest of the community). I think we've built a trust.

C - 46. Interview 47 (2: 27 - 34): The environment is a big one (area where the public is confused about the chemical industry). They think that firm C and chemical industries like it speak a lot about environment, but really aren't doing anything. They're just making money from making chemicals and if that's adversely affecting the environment then so be it. It's just in the chain of making money. But that's not really true. So much effort, money and time go into reduce and trying to have no effect on where we are.

C - 47. Interview 48 (5: 22 - 25): I think it's just trying to treat them the way we think we'd want to be treated if we were in their position. If I was a neighbor, I would appreciate the effort.

C - 48. Interview 49 (3: 38 - 42): We are part of the CCPA. In my own personal life, if you tell people you work at firm C they think you're destroying the ozone layer. They ask you if you were the ones who had something happen in India a while ago.

C - 49. INTERVIEW 11 (4: 8 - 13): What's interesting was my neighbor immediately started asking us if we had any skeleton's in our closet (neighbor firm didn't report explosion to the government). (Q: So what they do affects you?) Yeah, we all get colored by the same brush.

C - 50. INTERVIEW 11 (16: 43 - 17: 2): I suspect it's probably where it was (public perception about the same compared to fifteen years ago?) I don't think there was a lot of credibility certainly fifteen years ago, but there wasn't the public apathy there is today. I don't think in the late 70s or early 80s that industry, big industry, was all that favored. I can remember when I was a speechmaster doing a speech on a chemical company and just talking about the two emotions that override, that are caused by those two words chemical company and multinationals. So if you stood in HUB mall and did a poll of students that walked through and asked them what's your reaction to multinationals, Good or bad? Even though a lot of them are going to end up working for a lot of them, a lot of them would say bad.

C - 51. INTERVIEW 20 (6: 39 - 41): No question the chemical industry has a little bit of work to do in regards to cleaning up it's act. Either from a perception standpoint or a reality standpoint.

C - 52. INTERVIEW 17 (4: 30 - 32): It has to be more than that (perception). What we also don't take into account I think is the public has higher standards as well. If we were doing a rotten job here I think not only the public would be displeased but everybody on site would be displeased.

C - 53. Interview 49 (4: 33 - 37): We believe that looking after the environment is part of the value adding process. There are returns to be gained with your neighbors, because we are part of the community. We live here. Many live within kilometers of this site. We have a vested interest.

C - 54. Interview 48 (5: 1- 10): If there is a change where we are planning an expansion, those people are talked to through personal visits on the same day of the press release to see if they had any concerns... we want to keep that personal touch. We want them to know us face to face.

C - 55. Interview 47 (4: 37 - 41): A lot of it (expression of community concern) is in the community outreach like open houses, trade fairs, neighborhood dinners. We ask our surrounding neighbors to come in. A lot actually come out more in those neighbor dinners than in formal questions or concerns.

C - 56. Interview 48 (4: 30 - 36): Of course, there are always going to be people who aren't going to trust big companies. We have a community advisory panel (CAP) and we have regular meetings. Terry and Wayne are involved with that. A cross-section of the community is supposed to be represented. I'm not sure how they went about picking them, but I know that they have regular meetings.

C - 57. INTERVIEW 17 (3: 29 - 31): I believe that if you're willing to open your selves up to the public and show them what you're doing, and what you're trying to do to help, I think the pressure will diminish.

C - 58. INTERVIEW 17 (3: 9 -11): I think that once the public, we've had a number of open houses and attendance has dropped off, and I think that once the public is comfortable, the time allocated to remaining comfortable, or seeing what we're doing now, is less.

C - 59. INTERVIEW 11 (11: 25 - 39): There are a lot of difficulties, like we talked earlier, in just reaching the community. I gather, just from sitting and talking to my neighbors, I've been with this company for thirteen years and I've been in five different locations, is that when you sit down and you can talk to people and get to actually sit there, you can sort of reason with them. Most people are not, unless there is somebody in the group who is an avid member of the real strong environmental groups, of course we've got our communication problems there, but obviously, for most people today anyway, it's not number one priority. You know, if they have a choice like I'm renting a VCR or going to a hockey game, ... obviously, it's not a high enough concern that they'll come out and talk to us.

C - 60. Interview 47 (4: 31 - 33): I think they (customers or community) set standards. The community is very informed and very interested in what happens in this site. They definitely play a part in efforts we pursue.

C - 61. Interview 49 (2: 3 - 6): We have a CAP which is made up of the neighboring industries like the two FIRM F plants, ..., D1, ...and so on. Each plant has representatives on this board and the community has representatives too.

C - 62. Interview 47 (5: 3 - 6): There's also the Community Advisory Panel. It's joint between FIRM C and FIRM F. Some of the neighbors are involved in that. Information is passed on there.

C - 63. Interview 47 (6: 1 - 3): We've had people write or phone in and their concerns are with us contributing to the fog in the area or things like that.

C - 64. Interview 47 (6: 29 - 30): I'm not too sure what is done in other plants, but I know people are definitely responded to appropriately (by this plant).

C - 65. INTERVIEW 11 (9: 39 - 46): And it could be things like buy locally (community concerns). They (the community) don't want us doing our business with all national firms. They like it when we get our dry-cleaning done by somebody in Redwater. We hired an industrial guy from Newburg to do some work and they liked that because you keep him. The More people are buying houses, sending their kids to school, paying taxes. But of course, there aren't very many communities that like a lot of smoke stacks.

C - 66. INTERVIEW 11 (19: 50 - 20: 7): Obviously, in this province there isn't a strong technical environmental press. Terry, who is responsible for the community advisory, would end up talking to the local guy from the Redwater tribune and the Fort Saskatchewan papers and possibly if the Journal or Sun ever got interested in what we were doing. And they have been, but it's the business reporters that have, not like: I've heard a rumor that firm C is going to build a new plant. Can you verify that? We've never, to my knowledge, had some reporter knocking on the door saying; You guys are polluting the environment. What do you have to say for yourself?

C - 67. INTERVIEW 11 (16: 11 - 14): Environmentalists certainly have a lot less influence than they used to. And I don't know how great their influence every was, but they don't seem to have quite the impact that they did in the late 70s and early 80s.

C - 68. INTERVIEW 11 (16: 22 - 28): And the other side of it too is that some of those organizations are now professional lobby organizations. Some of the people we experienced at Greenpeace are no longer there, they're at the Sierra Club now. They are professionals and they take the same courses we take on media relations. They take the same courses on public organizations.

C - 69. INTERVIEW 11 (6: 24 - 37): On one extreme there's the group that is already well entrenched in their opinions and they are the hard core environmentalists. They're almost impossible to reach because they don't believe anything you say anyway. There's another group in the middle which are the kind that when Greenpeace comes to the door, hand over money and conform to pressure. ... It's very difficult to get to reach them. The only thing you can do, you have to find indirect ways, like through the schools, through teaching employees as much as you can. We try, part of all the operations people here, all are required to understand our license in our production system to operate. That just makes them, one, more conscious, and two, they take it back to the community.

C - 70. Interview 49 (2: 22 - 24): I've been around in the workplace with a number of careers and this organization is second to none, in terms of our safety and environment.

C - 71. INTERVIEW 17 (12: 31 - 39): Like this year we'll likely spend $100,000 dollars on various environmental commitments. Which is quite a bit for a relatively small site, to meet the reporting requirements. And some of that cost is just meeting requirements. We send all of our water samples off to an Edmonton lab. We had thought of doing it ourselves in-house, but because of the independent nature of the reporting it would be more credible to send it off site. So that is about thirty-six thousand dollars per year. In round numbers. Waste water examination once a year because of our licence requirements. another five thousand. Emissions surveys, there is likely some payback on that. Stops some leaks, but not the cost of the survey, but yeah there's a cost again.

C - 72. Interview 49 (5: 31 - 36): Yes, and what works for firm C may not be at 100%, but it's the best you can get right now. We've still striving to get to that 100%. Once we get to zero spills, then we've reached perfection. Can it be attainable? Sure, if you have preventative maintenance, the training of your people, engineering in place and technology.

C - 73. Interview 49 (6: 28 - 35): I can't believe that everything we do is just driven by money. A number of years ago, because firm C was one of the largest producers of PCBs in the world, Greenpeace did target us. At that time Greenpeace bought a token share and the demonstrated even though firm C, on it's own initiative, had gone ahead and driven the industry to find environmentally safe alternatives.

C - 74. Interview 48 (3: 32 - 41): Well, first off, I don't think other companies don't want to work safe or environmentally responsibly. I think they just have trouble managing it. When it comes down to just getting up by the skin of your teeth, you start focusing on getting that extra pound because you're trying to stay alive. Firm C has a history of really sound, solid management. One of the hardest things to manage is your safety performance. If you can manage that, then you've got a good team. If that starts slipping, that's a good early indicator that you've got a lot more problems coming.

C - 75. INTERVIEW 20 (4: 13 - 24): The other thing we have to do is, clearly, our company is evolving over time to say that the environment is almost as important as health and safety. It's like the first among equals. You take health and safety and environment and customers and people and they are all very important to firm C as corporate values and business ethics. But when it comes down to the bottomline, health and safety are first among equals. So what we did was we created a picture of work in our organization of what we want. We want quality peroxide, we want health and safety, and we want environment. In other words, we want to produce all of those things as outputs.

C - 76. INTERVIEW 20 (5: 13 - 26): We engaged a company to come and do an emissions study of all the joints in our plant. So, they came around and tested all the joints. They found a number of them that I couldn't tell you they were leaking if I tried, but if you take some sensitive equipment ... We went around and we tested every joint and sealed every joint. Well, that technology is available to everybody. It's costly to do it, but we just said it makes sense for us to do it in line with that kind of vision we've got for this organization. It really did. So, they've come back and they've tagged every joint and they come back and do a routine audit every year of a sample of those joints to make sure we've maintained integrity.

C - 77. INTERVIEW 20 (7: 28 - 33): Our philosophy here is to have a no spill policy. A no- leak policy. If something starts to leak we do whatever we can as soon as we can to try and shut down or stop the leak and if we can't do that then we contain it to make sure there's nothing being flushed down the drain.

C - 78. INTERVIEW 11 (5: 1 - 8): Another example is that we have a plant, our plant in Maitland, and there is a small plant beside it. It's owned by a different company who don't have an emergency response team and our emergency response crew in Maitland hasn't has to respond to a direct Dupont emergency on site for about two or three years, but we've responded to several for this small company, and you can at least tell the neighbors in that area.

C - 79. INTERVIEW 11 (5: 46 - 49): I guess that's what the public relations people talk about too, is that you never say no. This is what we do to prevent it and if it does happen, this is what we are prepared to do.

C - 80. Interview 47 (9: 31 - 34): I would say that with health, safety, and environment, it's an open book (the company cheque book). Safety wise, I've seen some examples. If something is unsafe, something is done about it. No questions asked, regardless of the amount of money. It makes you feel a lot better about what you're doing.

C - 81. Interview 49 (5: 21 - 23): That culture has been here since the 1600s. It's a condition of employment: environmental awareness and safety.

C - 82. Interview 47 (8: 31 - 33): To a degree. I don't think that the reputation part overpowers what values we have. I don't think we'd do anything to keep face that would compromise our values.

C - 83. Interview 47 (9: 35 - 40): I have an aunt in BC who often asks me how I feel about working in a chemical plant and I feel that I'm doing everything I can to protect the environment. I don't feel bad about the occupation I'm in. We all have to make money to live, but we have to make it the best way we can.

C - 84. INTERVIEW 11 (5: 17 - 24): We've always said we will not hide any FIRM C product. So, if you go over to Collier yard and look through it, because there isn't a huge petro chemical industry, it's not like in the Toronto Central Yards or Sarnia Central Yards, but you will find some firm C cars in there and they'll all labelled. So, we just talk to the public and we are prepared to stand behind our name. We are so confident we can do it right.

C - 85. Interview 48 (5: 34 - 42): They had a bucket list from the first meeting and each one was dealt with. On the other hand, we had a letter of concern from an individual that lives down that way about our expansion and they were very negative, but what they were saying was so wrong that I don't believe we addressed it. If the community is reasonable individuals, then that rapport will be there. We're determined to be reasonable, open and honest with them, but if you get unreasonable individuals, I don't know of anything you can do.

C - 86. Interview 47 (3: 21 - 23): Yes I would (believe that personal values and firm values are in sync). I really believe in the same values that are mission statements. On this site, in particular, we have a part to play in making the mission.

C - 87. Interview 47 (3: 28 - 30): It gets fine tuned. So, that helps you have a personal touch in it. There's a part of you that can say that you had a part in that.

C - 88. INTERVIEW 11 (4: 20 - 30): All you can do, well you can do two things in my mind. First, and probably most important, is to keep your own, make sure you really are clean. You know, ask yourself the tough questions. What would we do? And make sure you don't have any skeleton's in your closet that could haunt us. We got fined in 1993 by the Ontario government for spilling one liter of a product and I remember the name of it. It was at our Ajax plant. We know other companies wouldn't, smaller companies, would likely not report the same kind of a spill, even if it was significantly larger, they might not. But we would do it.

C - 89. Interview 47 (8: 38 - 43): There's basic training on our values and philosophies. Learning our mission and that sort of thing. A lot of the training comes from actually doing the work. As you're doing it you're learning it and living it.

C - 90. Interview 48 (7: 29 - 30): Maybe there's some pride in there. I'm not sure. I've never thought about why. I've just accepted it.

C - 91. INTERVIEW 11 (1: 18 - 23): In firm C it started about 1980. Now we were lucky. We had a President who was very visionary. I think you can see some of the large companies, probably the most prominent company is General Electric with Jack Walsh. You spend a lot of time looking at him because he's sort of the guru of this.

C - 92. INTERVIEW 17 (13: 18 - 20): I think a lot of it has to do with leadership vision. If corporate (head office) didn't have that vision I don't think rightly or wrongly that we would be doing what we're doing, despite what the employees would want.

C - 93. INTERVIEW 11 (2: 5 - 8): Eventually one senior executive retires and another one takes over and he just looks out and says: When I look out in fifteen or twenty years, what am I going to need to be successful? We can't continue to do business the way we are.

C - 94. INTERVIEW 20 (6: 1 -15): Well, I've been with the company for 29 years, so if you talk about thirty years I kind of go along with that. I joined the company in Sarnia and from what I recall, environment and control of leaks and waste disposal, at that plant, was always a key operating parameter that we measured. Now, we didn't measure it the same way we're doing here today, but everybody there had, relatively speaking, a high value for all three of these components. They weren't discussed the same way we would have discussed them here. I've always felt that this firm was a very responsible company with regard to health and safety and environment and the way we treat people. But that's personal experience and obviously I have value for those and if I ever experienced treatment that made me stop and think about that probably wouldn't be working for them.

C - 95. INTERVIEW 20 (13: 47 - 51): It comes down to individual values. The people. You can have corporate values all you want, but if those are not translated by site management and site leadership in giving the people the opportunity to live out those values, then you're probably going to have difficulty.

C - 96. Interview 48 (7: 37 - 42): I do know that the founder had these personal values and just talking with the President of firm C, he's got those values. Norm, our site manager, has those values. There is no conflict. I think people want to do what's best, but many don't know how.

C - 97. Interview 49 (5: 25 - 27): (Are people hired for their value systems?) Yes.

C - 98. INTERVIEW 20 (4: 33 - 54): You know, I want to work and live in an environment that is healthy and safety is predominant as well as I want to be part of a corporation that is a good corporate citizen. Like myself, I'm a good corporate individual, with regard to the environmental factors. So we started right at the top. It's kind of unique because you can see the peroxide but you can't see the environment, health and safety. But it was more to try and create a mental image in everybody that these were the three ultimate outputs that everyone was accountable for. That was very consistent with the corporation as far as values.

C - 99. Interview 49 (7: 26 - 27): If you're trying to justify what firm C is and validate it with dollars and cents 100%, it's not going to happen.

C - 100. Interview 48 (2: 45 - 48): Well, the hose would be a good example. There would be nothing said and no one would really care if we flushed that hose to the ground from a government point of view. I think we go the extra mile with regards to environment and safety.

C - 101. Interview 48 (2: 12 - 14): I've seen some maturity and people taking more responsibility and accountability. That is with not only environmental, but also safety as well.

C - 102. Interview 48 (1: 43 - 46): Operation is part of running the business. You can't really separate it and still do it effectively. I've worked as an operator at other plants and I knew nothing about the administrative things.

C - 103. Interview 48 (1: 33 - 35): I think everyone has a pretty good understanding of the whole operation because there's so much overlay and interaction.

C - 104. Interview 47 (1: 38 - 39): Personally I am happy. It (multi-tasking) gives me a challenge and it's different than just doing the same job day after day,

C - 105. Interview 47 (9: 1 - 7): The environment that we work in fosters people's participation. Here, every idea is valid until for some reason it can't go through. If you think of something that could cut down on our effluent, you have the power to bring that idea up and so some back up work on it and really see it through. It's just another way of having a personal stake of where you're operating.

C - 106. Interview 49 (6: 1 - 4): Targets are put out for us at the beginning of the year by our CEO. We expect a normalized return on equity of x%. We are a salary plant. We have all chosen to put 4% of our salary at risk through profit sharing.

C - 107. Interview 49 (3: 53 - 4: 8): If the leadership processes are there and the technology is there and the resources are there, as far as people to contact ... we have an engineering site in the States with thousands of engineers in one building. Outside of their regular duties, they have a speciality that they are responsible for. ... I will call them up if I need some data.

C - 108. Interview 48 (8: 1- 13): And then there's orientation to the way we think: our beliefs, philosophies and principles. There is an opportunity to get aligned with that. There's also continuous training. People have to understand the consequences of their actions. The reason I do things is because I'm expecting a consequence. If I'm trained to the point that if I know if I dump this barrel of chemicals, I can expect this to happen, it will cause me to behave in such a way that it won't bring about that consequence. On the other hand, if I'm not educated, I might do things that are harmful. I think in a lot of cases, people will do the right thing, if they know what the right thing is.

C - 109. INTERVIEW 20 (3: 3 - 11): I'm sure when you talked to Ernie, he kind of reflected that (senior staff as resource for younger staff). Essentially our role here is to meet the business need. Sort of living all the values we cherish and at the same time maximizing the personal potential of every member of this plant including myself. Titles don't mean anything. Everyone here is focused on developing their work and designing their work to maximize personal potential and the potential of others in their area.

C - 110. Interview 48 (3: 4 -13): It starts right at the top. Our CEO comes here and he talks about safety and the statements that we get from head office talk about our commitment to safety and environment. We know that the top managers are on board and it's up to us to carry it through. No one is ever going to come down on you for doing things right. We've got the freedom here. Our focus is not to pump out that extra pound and make the extra buck. There is no pressure in that way at all. There is pressure, though, to work safely and environmentally. That's perfect.

C - 111. Interview 49 (2: 38 - 47): It's right from the top. Our CEO, vice-presidents that are high-profile, and our human resources, and environment people. It is a culture. It is our prime reason in whatever we do. Our motto is that we will not do something if it cannot be done safely. I've worked in other organizations where safety was highly profiled until the time came when there was safety versus production problem. I saw production win over safety many times. That just does not happen here. You have to believe that. You, as a FIRM C employee.

C - 112. INTERVIEW 20 (15: 21 - 24): I believe there's a direct correlation between the ultimate benefit that business realizes and personal benefit that each individual realizes from working in a particular business environment.

C - 113. INTERVIEW 20 (18: 7 - 13): All things you do in a work place all impact on the bottomline and ultimately they do. Our theory here at this plant is we have a picture of the ideal way to run a business and pursue the ideal way, then ultimately, we the individual become better and will be able to make a larger contribution. So, overtime, our productivity has got to go up.

C - 114. Interview 48 (3: 47 - 49): I think health, safety, environment will contribute to sound profits in a good solid business.

C - 115. INTERVIEW 20 (15: 35 - 37): There is no question in my mind that the way people feel about being a member of a business translates to the bottomline of that business.

C - 116. Interview 48 (7: 10 -21): I know that our philosophy will satisfy all stakeholders. I think we're seeing that. For example, our safety stats are about sixteen times as good as the industry standard, that's for chemical plants. For the general industry, it's somewhere around 52 times better. We're also seeing phenomenal returns. A portion of our pay is tied into the performance of firm C. So, if we do well, we get a bonus. We can take the pay out and buy shares and if we keep them for five years, we're actually reimbursed the full amount so now you have the shares and the money. But if the company doesn't do well, there could be no payout at all.

C - 117. INTERVIEW 17 (5: 28 - 29): I think our firm's philosophy, in anything we do though, business or environmental, or health and safety, we want to be leaders.

C - 118. INTERVIEW 20 (16: 31 - 43): What are the key factors that you are looking at to measure ... You could show factual information that shows the relationship with Industry and those stakeholders in 1950 compared with the year 2000 or 1995. I think if you look at community, the whole notion of control of Industry. Sure, some of them are driven by regulation. I think that's a realization that that's just a better way to run your business. You might look at the shareholder side and you might be able to find a correlation between profits and environmental consciousness. No question in my mind that safety is not only a factor for individuals and employees, it's also a factor for community.

C - 119. Interview 48 (3: 30 - 32): We do not believe accidents happen. If you do everything through the resources in place with all the training, accidents don't happen.

C - 120. INTERVIEW 17 (11: 21 - 25): Being economic also means being in business as well. And that's a good point. Right from the start of the project we've said that we have three products from our plant. Product around Peroxide, a product around safety, and a product around environment, and any one of those three products aren't delivered then we're in trouble. If we don't produce on all three of those then we're not meeting our business commitment.

C - 121. INTERVIEW 20 (24: 16 - 28): But firm C currently has a strategy for the 90s that is an improvement from the 80s. I think we'll just have to go and say: "We're going to have to have a strategy for the 21st century that's better than the 20th century." I just think that will happen. As we become more knowledgeable and more credible, we'll figure out ways to be better than we are today. I mean, the whole notion of continuous improvement applies everywhere. If you don't continue to get better at what you are doing, you're going to get worse ... Our philosophy here is: If you ain't getting better, you're getting worse. Either you're getting better or you're getting worse. And I think that applies to our whole company...

C - 122. INTERVIEW 11 (2: 1 -4): I don't think it was something that you could sit and put your finger on and say on March 31 we weren't environmentally friendly and on April 1st we became environmentally friendly. It's just a whole pile of events.

C - 123. INTERVIEW 11 (2: 42 - 48): From my experience, it's something that's evolved. It's not something that just ... I think you've just got to place your hand on it. You think about the type of projects you do. If early on in the testing stage it shows any toxicological effects, it's canned, even if it has good economic potential.

C - 124. Interview 49 (3: 4 - 5): Why do we accept that? It's a noble goal. The economics of it make sense in terms of health and safety.

C - 125. Interview 48 (7: 4 -5): Well. we know that unless the stockholders get a return, there won't be a business.

C - 126. INTERVIEW 11 (8: 18 - 20): There's no question that's the challenge. I mean, we could become the most environmentally friendly company in the world, and go broke in the process.

C - 127. INTERVIEW 17 (12: 31 - 39): Like this year we'll likely spend $100,000 dollars on various environmental commitments. Which is quite a bit for a relatively small site, to meet the reporting requirements. And some of that cost is just meeting requirements. We send all of our water samples off to an Edmonton lab. We had thought of doing it ourselves in-house, but because of the independent nature of the reporting it would be more credible to send it off site. So that is about thirty-six thousand dollars per year. In round numbers. Waste water examination once a year because of our licence requirements. another five thousand. Emissions surveys, there is likely some payback on that. Stops some leaks, but not the cost of the survey, but yeah there's a cost again.

C - 128. Interview 47 (2: 50 - 52): I think there's a real value for doing it as well (plus saving effort, time and money). That's the underlying force that is driving the people to improve.

C - 129. INTERVIEW 20 (14: 32 - 37): If you think back to the whole 'fugitive' emissions, and we spend preventive type dollars in doing surveys and let's say it costs us $50,000.00 a year. That's quite a bit of money. If if have one week where we have to shut down to fix that leak, it could cost us a million dollars. Is the $50,000 an acceptable cost?

C - 130. INTERVIEW 20 (6:30 - 34): I recognize that there are always incidents. When you have a company with as many plants as we do it only takes one incident for the public to say that's one of those chemical companies again.

C - 131. Interview 49 (4: 48 - 54): A lot of people put their money into things that their conscience can live with. Customers wish to deal with businesses that do not have a bad reputation. If we were to continuously have Alberta Environment coming here and putting our license to operate on probation, our customers would not be pleased. They have other options.

C - 132. INTERVIEW 20 (13: 24 - 30): The customers number one priority is guaranteed supply of product. If the customer finds out that you are kind of in trouble with the environment they're going to say: I think I'm going to go to a competitor because they're a little more reliable. So, insurance of supply is really very important.

C - 133. Interview 48 (6: 14 - 25): And we go the extra mile insuring that our safety and environmental concern doesn't stop when the product leaves. We've responsible for that product, not only at the transport, but the way they handle it when it gets there, the way they used it, and the way they dispose of it. Next week, I'll be spending a week with one of our customers training everyone on site in safe handling and basic storage, to inspect their equipment and so on. We've helped some of our customers market their product and we've made them more successful through our efforts. We've actually reduced one firms percentage of peroxide down to about 60% of what they were using while maintaining the same quality. We work together.

C - 134. Interview 48 (6: 44 - 46): Part of the reason I'm going next week is I'm going to help them become more competent. It's our joint responsibility to make sure we're working well together.

C - 135. Interview 47 (7: 31 - 36): Our main customers are pulp and paper. Certainly you hear a lot of rumors of what goes out from the pulp plant. Personally, I have not visited any of these plants, but that's what the marketing group is here for. They're helping these plants to use more environmentally friendly product.

C - 136. Interview 47 (7: 51 - 8: 2): The majority of the education is through marketing. We also play a part. We have customer champions. They are people in the operations group that are aligned with customers to answer their questions and work at the customer's site to train and try to trouble-shoot for them.

C - 137. Interview 48 (5: 49 - 53): I don't think our customers are all that concerned about our environmental performance, although we've had customer visits. One of the customers I'm aligned with had the production manager come and visit. He was really impressed. I think they are more concerned with how we're impacting their business. We've very active in their businesses.

C - 138. Interview 47 (8: 9 - 12): I wouldn't say that the thrust on that would be so much environmental but rather more customer satisfaction. We also want to see our product being used properly and not having an effect on the environment.

C - 139. Interview 48 (6: 26 - 30): As an example, we send a rail car to them and if they can unload it, seal it up and send it back the same day or a day later as compared to like ten days, we can cut our fleet to about two thirds. It's saved millions of dollars. So, we can lower our price by working with them.

C - 140. Interview 48 (6: 5- 9): (Aren't customers interested in cost savings first?)That's what I would think, but the actual fact is that we charge more than our competitors and we're sold out and have been since we started up. Our offer has not been based on the cost. There are four elements which are cost, quality, effectiveness, and use.

C - 141. Interview 47 (9: 52 - 10: 2): (I wonder if the public makes the connection between our environment being clean, and therefore costing more?.) I think, these days, what's bought is whatever is cheapest.

C - 142. Interview 48 (2: 38 - 40): But firm C goes way beyond what we're required to do. They really do consider this a serious thing.

C - 143. Interview 47 (9: 22 - 26): I think that a company has to believe that they are doing everything they can to make it better. If you have the thought in the back of your head that you could be reducing air emissions, but you don't, I don't think that would be right.

C - 144. INTERVIEW 11 (14: 39 - 47): We have, through the CCPA, a group from Vancouver that is contracted to do surprise audits on our transportation fleets. Our sort of general rule here is that ... Transport Canada, we'll let you in. Do what you want and obviously, for safety reasons, we accompany you across the site, but we insure that we don't do anything that might make you feel that we were trying to snow you. If you ask to see a file, we'll take you to the files. We stand back and let you go through it.

C - 145. INTERVIEW 11 (4: 20 - 30): All you can do, well you can do two things in my mind. First, and probably most important, is to keep your own, make sure you really are clean. You know, ask yourself the tough questions. What would we do? And make sure you don't have any skeleton's in your closet that could haunt us. We got fined in 1993 by the Ontario government for spilling one liter of a product and I remember the name of it. It was at our Ajax plant. We know other companies wouldn't, smaller companies, would likely not report the same kind of a spill, even if it was significantly larger, they might not. But we would do it.

C - 146. INTERVIEW 11 (10: 49 - 53): (So industry's leading government?) Yeah, especially today when, to be fair to them, the department of Environment has been cut back on people so much.

C - 147. INTERVIEW 17 (6: 34 - 37): I think it's very interesting to discuss environmental issues with our counterparts in Ontario, with the approach that the MLE has taken in Ontario versus Alberta. In fact the standards are very similar if not even more stringent in Alberta yet the approach on how they get there is much more cooperative.

C - 148. Interview 47 (9: 14 - 18): I think it (government regulation) affects us in the way that people double check what their standards are. By looking at the government standards, it makes you do a double take at what you believe your standards are and perhaps adjusting them if necessary.

C - 149. INTERVIEW 20 (23: 43 - 45): Sure we are (getting more and more regulation) and It's dangerous because a lot of the regulation is being driven by emotion and not by practical reality.

C - 150. INTERVIEW 11 (4: 34 - 46): Ontario has some very tough legislation around that (not reporting spills etc). Now even they, I understand, are startling to feel that their tough legislation has forced some things underground that only the big companies are prepared to pay the debts on it. The second thing you do is just the best you can. Tell your story and you have to do it in a credible way. You can take up some advertisement on TV, which you sponsor, but that can only be part of the picture. You have to, you now the popular thing right now is community advisory panels. People want to come and the neighbors want to come and talk to you. You do your best to sit and listen to them.

APPENDIX D

SELECTED DATA QUOTATIONS - FIRM D

D - 1. Interview 38 (5: 5 - 11): I think that between our plant and the States, that anything to do with it, they are quite meticulous about guidelines or better. They just don't try to scrape by, and I don't think that money would be an object on that issue anyway. Safety, the same thing. If anyone strays from that line they are gone from here. As far as production, there's no surprises there, this plant is still new enough that it is still maintaining its own, minimal repairs. They are making their dough out of it, that's why I know they are making money or they wouldn't be here. Firm D isn't a company to keep a dead horse, they'd be done if it wasn't making them dough.

D - 2. INTERVIEW 21 (18: 20 - 39): We have a safety and environmental reserve that the company identifies and those things are set in terms of capital and expense money. Money is set aside to meet those regulatory things. So we are pretty assured that we'll get the money for that. In the shopping list of things, we identify the cost and the priority kind of using the 80 - 20 rule and it depends on how much money we have for capital and then there's a balancing amongst all the plants. ... Oh we'll identify, you know, we may have twenty things to improve performance and we'll more the ones that give us the biggest bang for the least amount of dollars. We may, if the capital available next year is low, we may only get one or two things that we can do. If they're loosening the strings, we may get more. The expectation is that what we don't get next year we put forward again the following year so that we chip away at this list.

D - 3. INTERVIEW 21 (5: 40 - 45): Mind you, if I could find a way to save a quarter million dollars I would. That would be looked at very favorably. We don't throw money around and say: Oh well, that's only a quarter million dollars. That goes right to the bottom line. But there are more risks doing that right now that will be increased over time.

D - 4. INTERVIEW 23 (10: 32 - 45): No, not so much that but we are only given so much money a year to do plant business. On the other hand, if something's come up that's changed, the company is still going to give us the money for it. If we got fined, of course they're going to give us money for it. Or say, this new fee schedule wasn't budgeted for, for course they are going to have to pay for it. It's in regulation. Those aren't big humungous things. But I would say, to some extent, you'd like to stay close to budget because there is a reason it was created that way. The way those numbers were picked is based on trying to keep the company making some money and keeping the shareholders happy and making sure our product sells and so forth. I'd say that's an indicator to where you should be.

D - 5. INTERVIEW 23 (1: 42 - 46): I try to see, ok. How does the public and the government feel about certain issues? We want to do the best we can in that direction, but again, we don't want to bankrupt the company.

D - 6. Interview 41 (5: 12 -16): Well, it boils down to the fact that if you cannot change you are not going to survive. One half cent a pound to us is a lot of money, whereas half a cent ten years ago ... we used to give the stuff away because no one wanted it. Now its: How can we do it cheaper? How can we do it more effectively?

D -7. INTERVIEW 26 (8: 48 - 51): Everytime we make a change or put in a new project, we certainly say: How can we make this the most energy efficient, environmental efficient as we can.

D - 8. INTERVIEW 21 (18: 45-48): Well, for environmental things, we don't have to necessarily show a return. The company is sensitive to improving performance. If you can show a return, all the better.

D - 9. INTERVIEW 21 (19: 1 -7): That can be (cost savings with environmental improvement), but there are some things that are simply to reduce liability. For instance, we have some tanks. We have one of our raw materials in a large vessel and we have it dyked. If there were ever a leak or a spill, it would be contained. One would think that was adequate and at one time it was. The company has a policy now of impervious liners and secondary containment.

D - 10. Interview 41 (9: 30 - 33): I think it also has to do with the change that's been happening with the style of leadership in that people don't want to the "caught with their pants down", and having the fear of not being established with the community.

D - 11. Interview 41 (5: 3 - 12): I think some of the senior management of firm D now has enough sense to see ten years down the road, maybe even twenty years down the road. It's just a big snowball. It started out very small. The number of leadership things that have happened on this site alone, going from the dictatorship to the other extreme of an open team system with no supervision and now back to somewhere in-between. They have enough sense to see far enough ahead that they can predict some of this stuff. The big thing now is change change change. How much can you change?

D -12. INTERVIEW 23 (3: 35 - 53): I would say awhile ago they weren't really (government on the same wave length as the firm), but they've become more and more conscious that way because we've gone through ... since I started working in 1990, changes started happening rapidly in government. When I first came, environment was kind of a background kind of thing. I just had to put in monthly reports and we had a pretty standard license with everybody else. No great big requirements or anything. I think it was the following year in May, we got a new water license. Without warning, without a soul talking to us from the government, we got slammed with a 33 page license and our original license was something like five pages. It has so many requirements, so many reports we had to put together.. Like a Spill Response Plan. Do a characterization of you effluent, which costs a lot of money. Step up some sampling. Start doing some other sampling that if you fail you will be considered to be breaking the law and we can take you to court. All these things happened and it was like there was this hidden agenda and they just suddenly gave it to us.

D - 13. INTERVIEW 23 (4: 8 - 15): And then I got very busy for about a year because it was almost monthly that I had a big report to try to figure out how to get done. We were really upset with that because they just slammed us with that. Without any warning. Without discussing anything with us, without saying: Can we work with you and find out what's the value of doing this study? Is there a way that you can think of to fit it better with your plan?

D - 14. INTERVIEW 21 (15: 11 - 21) Oh, I think that's part of it (liability). And we go back to the comment in the first ten minutes or so, the leadership, the good leader, sees all of that, the liability, as good business. It's a whole lot easier to sell your product or stand in front of a public audience when you've been a good actor. If this is the sixth time you've been up for bad stuff, pretty soon you're going to say: Can I trust what this person is saying? So there's trust. There's liability. Liability could be enormous. Environmental liability now, you can't get insurance.

D - 15. INTERVIEW 21 (16: 13 - 18): You're only going to invest if you feel secure that it's going to be business for the long term and if you have some concern about the risk, you're going to want a higher rate of return. That's why the chemical industry produces a higher rate of return, or has the desire to produce a higher rate of return.

D - 16. INTERVIEW 26 (13: 7 - 9): I'm sure they (bankers) are quite aware. When the bank loan was negotiated down in the US that there were a lot of environmental questions.

D - 17. INTERVIEW 21 (13:51 - 14:7): The real audience is the shareholder. They (the original owners) located here because it made sense at the time, because of the raw materials, customers, you know, all those sorts of things they have to consider. It's not the sort of operation that you can say: Well, it's not good here. We'll pick up and go somewhere else. If it's not good, they're going to shut it down and pack the tent. It's a secondary thing, but money is the root of it, be it money for capital, money for operating expenses, or money just to pay the shareholders. Given that though, they do have to operate and we want to operate.

D - 18. Interview 41 (3: 17 - 20): Well, 1985-86-87. That's when everyone started scurrying around and awareness was raised so quickly. That's when a lot of people started acting and doing things because they knew it was going to come.

D - 19. Interview 41 (2: 25 - 32): All of a sudden all of the legislation was brought forward, and it was all exposed. We couldn't do this because of that and so on. It came to a point where if we didn't do this we weren't going to stay in business. Threats were made, but that's no different than the police saying that if you don't drive under the speed limit, then you're going to lose your license.

D - 20. INTERVIEW 23 (21: 22 - 28): I'm just trying to think. Let's say it was cheaper to do it that way (do the absolute minimum you can get away with). How would the employee feel about it? They probably wouldn't mind. Government would know through, because you would have to put out a report saying you're putting out 9.9 kg every day (instead of 0.9). Essentially the only driving force in the end would be government.

D - 21. Interview 41 (3: 25 - 29): And a lot of times we'd beat them (by achieving compliance before the deadline). We were on the path where having no law to push this stuff made it easier because you knew where the end point was. You knew that somebody was going to come and check and you'd better be there by that deadline or you're going to be in trouble.

D - 22. Interview 41 (4: 22 - 24): We've driven ourselves because we could foresee this coming. It's because Nola has the 'ins' with some of these guys from the department that it makes it a lot easier to predict these things.

D - 23. Interview 38 (1: 34 - 35): The licensing is probably the big thing, and they've made a point of informing the area operators of any changes.

D - 24. INTERVIEW 21 (12: 36 - 43): The regulations for the most part in Alberta are fair. They are very strict. You cross the line certainly enough times and they have the power within the Act and regulations that they can do all sorts of things, but that's where the fairness comes in. You don't necessarily get hammered for the first incident. It depends on the incident. And that's really what it needs to be. If there's something that could truly be considered an Act of God, that would be handled differently than gross negligence.

D - 25. INTERVIEW 23 (14: 48 - 15: 13): It is really ridiculous because we are required on using all kinds of chemicals. We're even banned from using some chemicals. But, the farming industry! They can do whatever they want. They are exempt from so many things. They can put as many pesticides all over huge plots of land which all drains into the ground water and goes into the river. But, if there was a chemical plant making pesticides, maybe Dow, if they had one part per billion in their effluent, they're in trouble. It's the way things are done. Part of that is because the government realized the farmer can't be valuable without doing these things. He's going to lose his farm if he can't keep the weeks down or the pests down or whatever. But, for some reasons, that same thinking doesn't carry over into Industry. It's the deep pocket thing. Oh yeah. They must have lots of money. They can afford to make the change. So, we'll make them make the change and hope they'll make the world better by this much. So, that definitely happens. I know the farming industry (basically is regulation free) and the other one in Alberta that hasn't had as big an impact as of yet is the oil industry.

D - 26. Interview 38 (1: 37 -40): Now they make a point of making sure that we know what the guidelines are as far as the government is concerned. And what their goals are as well, but the firm D goal, which are usually more tightened up than anything the government insists on, but we try to do better than the requirements.

D - 27. Interview 41 (4: 11 -22): I think after that incident that we had with those releases, we've probably driven ourselves harder and not depended on the government to tell us what to do. We know that three or five years down the road that we'll have to have zero effluent to the river. We know that's going to happen with the proposed water regulation that's before the government right now. We've been working on this for over the past year of how we are going to get to that zero effluent. We don't have to wait for the government to tell us that by 1997, we have to be down to zero effluent. We're half way there already.

D - 28. INTERVIEW 26 (8: 25 - 30): It was a fee problem (why firm D left the CCPA). We were spinning off as a new company and we were in a live or die situation and it was quite a high fee and questionable. But what we did, it forced us to do better. What we are doing with the ISO 9000 will force us to do better environmentally, cost wise, quality wise, so there is a payback.

D - 29. INTERVIEW 21 (16: 28 -32) I'm aware that is in their arsenal of things that they can use (a closure order from the government). That that's there. They can pull your operating license. Occupational Health and Safety can shut you down and give you a stop work order, but that's not really something that we've talked about here.

D - 30. Interview 38 (9:45 - 10: 2): Well, they've got it drilled into these guy's heads that if you see somebody doing something that you don't think is right, someone out there will tell you. Wear goggles, do this, do that. You didn't get that right when you shut it down. It will be said. And that is right among the crew without any outsiders or any heavyweights leaning on them.

D - 31. Interview 41 (2: 10 - 15): There's always somebody looking over your shoulder. That's driven in a lot. The next guy will look out for his buddy to make sure he doesn't make a mistake and doesn't dump it in the wrong sewer or whatever. I don't think there's much that you could get away with now whereas before no one cared.

D - 32. INTERVIEW 26 (19: 13 - 20): I'll tell you, there's nothing that makes me hide under the table more at the quarterly meetings than those audits. There's nothing that I envy more than when the plant manager gets called up in the January meeting and gets the reward for his plant meeting the environmental targets. Nothing much is said, but there's lots said when the incidents occur. The ethic that's instilled in all the plant managers is: My plant ain't there. I want to duck under the table.

D - 33. INTERVIEW 26 (19:51 - 20:4): I would feel real bad if I had to look at a worker across the table who's only 42. I don't want people to suffer pain or a guy to retire and he's a cripple. I just don't want that on my conscience. And it's the same thing with an environmental release. I don't want the gas alarm to go off. I would just feel terrible if somebody did that to me. I really think that that's a lot of my internal driving force. We don't want that. I wouldn't want that.

D - 34. INTERVIEW 26 (19: 46 - 47): We've got a presidency that wants to be the best in terms of safety and environmental behavior.

D - 35. INTERVIEW 21 (6: 36 - 45): Our firm , (like all) companies, is operated by people. In business, the company is not real without the people. Our chief executive officer, in his reports, and our plant manager, perhaps, have taken it upon themselves more seriously than other CEOs and plant managers and so on in other companies. And in the same vein, perhaps, they haven't taken it quite as seriously, or taken it as seriously quite as soon as other companies because ... I would hope, and I think that our firm is up near the top, not be the top, but it's awareness.

D - 36. INTERVIEW 23 (20: 40 - 44): Or water. Let's reduce our water to only have to effluent the absolute minimum that we have to. So, that sort of encompasses everything that we wanted to do with environment. We want to try to almost close the system, as much as we can.

D - 37. INTERVIEW 21: (6: 22 - 30): Ultimately the only acceptable environmental performance is zero incidents. Zero spills. Zero releases. Zero leaks ... That most certainly is our firm . I think, in general, it's Industry wide. Some company's are further along, some are further behind.

D - 38. INTERVIEW 23 (20: 24 - 36): I couldn't tell you it word for word, but I could tell you that it's basically everything that comes into the plant is used and everything that goes out of the plant. So, that's very generic and that's exactly what we want. We want to be able to say that virtually everything that comes in here is either used or can yet be used when it leaves here. ... It's not just solid wastes, it's also emissions. Minimize emissions. All the vinyl coming in, we want to make product out of it or recover it or reuse it.

D - 39. INTERVIEW 26 (9: 15 - 26): I think that's done (Dow's closed-loop system) in anticipation that it will be a requirement in the future. We're looking at how our effluent, which is like a peanut compared to other plants because our process doesn't use very much water, but we're looking at how we can close the loop because at some time we maybe faced with zero effluent as a requirement. Again, if we could just recycle things, we buy our water from Dow and just signed a new contract with them that if we reduce the volume, they'd reduce the price. So, there's a little financial benefit. It will never pay for the project, but there's some gain. We're trying to work our way towards zero.

D - 40. INTERVIEW 23 (10: 45 - 54): Now, the public really throws a curve into everything, though, I find because from one day to the next you don't know what the public is going to come up with. That's probably the scariest thing. We have the chlorine issue where some of the Greenpeace people decided to make a big issue out of chlorine and how the heck you're going to get rid of chlorine. It's absolutely ridiculous. It's an element on the periodic table. I would like to know how you're going to get rid of chlorine. Its a naturally occurring element.

D - 41. INTERVIEW 23 (12: 19 - 26): Hey, if we ban chlorine, what am I going to use in my swimming pool? They don't make the connection. Or what about all that plastic in my car? I'm not going to have that any more. I'm going to have to go more expensive material. That doesn't effect me directly. They think that if they get rid of the chemical plants their health will be better and that's all they think of.

D - 42. INTERVIEW 21 (6 - 14): When I think of what we do here, I think we were doing the right things internally, but probably what Bhophal did was cause us to look more externally, begin working with the community more. ... External behavior.

D - 43. INTERVIEW 26 (6: 1 - 10): It's the response of the environmental people. It's an emotional response. Some of the government people, I think, recognize this, but they're caught. The press will certainly listen to Greenpeace with their emotional appeal more than to a scientist working in a factory. They can work it better in the paper and they can understand it easier than they can a scientist with a whole bunch of facts. And readers don't want to read that. So, they get that and that pressure becomes, on government, to do something whether it's the correct thing or not.

D - 44. INTERVIEW 23 (13: 5 - 15): I think that, overall, we're still going to have the alarmists, we'll never get away from them. But I think it will die because people just won't be interested. Like the politician won't get in because he says: I'm going to get tough and make zero discharge for everybody. People are going to say he can't do that. They don't care. They don't want the prices to go up anymore. I think that the majority see it that way. Other people who are, in some cases, less educated, or who are alarmist who I would almost say are less educated in some ways about certain things.

D - 45. INTERVIEW 26 (7: 10 - 16): We've said some things about the environmentalists and I don't think we'd be as far ahead if it wasn't for their actions, I just think we could get a better balance of their actions and just stand back and say: "Look, we've achieved a lot." I sense it's happening a little bit, more environmentalist organizations are saying let's work together.

D - 46. INTERVIEW 26 (14: 6 -7): The comment of selling newspapers comes into every facet of reporting. Some of it really gets distorted.

D - 47. INTERVIEW 23 (14: 6 - 7): But what ends up happening is you've got the media who also end up throwing a curve because they are only going to publish the stories that are going to get your attention and that's what happens.

D - 48. INTERVIEW 21 (15: 11 - 21): Oh, I think that's part of it (liability). And we go back to the comment in the first ten minutes or so, the leadership, the good leader, sees all of that, the liability, as good business. It's a whole lot easier to sell your product or stand in front of a public audience when you've been a good actor. If this is the sixth time you've been up for bad stuff, pretty soon you're going to say: Can I trust what this person is saying? So there's trust. There's liability. Liability could be enormous. Environmental liability now, you can't get insurance.

D - 49. INTERVIEW 21 (17: 28 - 48): We do a management systems audit. They're not really out there peering under the rocks and ... if they see something and it's amiss, then they'll identify it, but it's looking at the management systems that we have here. Now, we're very open about it. It's pretty easy. It's internal anyway, but really bare our souls. Then comes the report. There are some items that we need to do to meet regulation. For instance, our operating license. It's a very complex document these days and somebody else will read it and say: Here's a twist. If I were a lawyer looking at it this way, and sometimes we get out lawyers involved, maybe you should do thus and so, where we were real clear, but we interpreted it differently. So, now we have to get that license amended to fit what we're actually doing or change what we're actually doing. It is maybe minor. It could be major sorts of things. If we were doing something that did not meet regulation, that would be identified. Sofar, all of the things are technical legal type things so I don't have any fear. Then there's a whole long shopping list of recommended things to improve performance.

D - 50. INTERVIEW 23 (10: 32 - 45): No, not so much that but we are only given so much money a year to do plant business. On the other hand, if something's come up that's changed, the company is still going to give us the money for it. If we got fined, of course they're going to give us money for it. Or say, this new fee schedule wasn't budgeted for, for course they are going to have to pay for it. It's in regulation. Those aren't big humungous things. But I would say, to some extent, you'd like to stay close to budget because there is a reason it was created that way. The way those numbers were picked is based on trying to keep the company making some money and keeping the shareholders happy and making sure our product sells and so forth. I'd say that's an indicator to where you should be.

D - 51. Interview 39 (6: 21 - 26): I don't think it's economically feasible, but if this was a new plant you could have it where you didn't pump anything into the river. We could turn this into a closed-loop plant, but you can't spend twenty million on a thirty million dollar plant just to save pumping a little bit of water to the river.

D - 52. Interview 39 (9: 13 - 19): I don't think it will ever get perfect. At one time they're taking in parts per million and then they'll start talking in parts per billion that you're only allowed to do. Things will gradually get tighter. This plant's only got a ten year life span anyway. It will be 25 years old then. Unless they spend some major money on it, but I can't see firm D expanding it.

D - 53. Interview 41 (2: 38 - 44): Then the plant numbers started to shrink, so it was a lot easier to train people and make everybody aware of what had to happen. When we were 140 plus people on site, you can lose track of what somebody's doing, but when the numbers got small, it's pretty easy to keep tabs. The informational flow and the education became easier.

D - 54. Interview 39 (9: 13 - 19): I don't think it will every get perfect. At one time they're talking in parts per million and then they'll start talking in parts per billion that you're only allowed to do. Things will gradually get tighter. This plant's only got a ten year life-span anyway. It will be 25 years old then, Unless they spend some major money on it, bit I can't see Firm D expanding it.

D - 55. INTERVIEW 21 (12: 8 - 12): There's peer pressure, but even so, it's made up of individual companies and some are ahead and some are behind. So, the government may respect the view of the (CCPA) association, but view individual companies differently just because of their historical performance.

D - 56. INTERVIEW 21 (12:47 - 13:11): If you weren't duly diligent, then there are a variety of measures the regulators have. I think right now, because these regulations in the Act are fairly new, they're searching their way through it and so is Industry. I don't have any major complaints. The only thing that I have a concern about in Alberta is what I perceive as an attempt by some of the people to improve the environment on the backs of companies. What I mean by that is I have had comments by some of the people in Alberta Environment: Well gee, maybe you could do something like so and so. Or somebody else. And that's a delicate thing. They know what all the companies are doing ... down to Calgary. I have no contact with companies in Calgary. And there may be a piece of new technology that I'm not aware of that really makes sense. On the other hand, you have to look at here's a maturing plant, a small capital plant.

D - 57 INTERVIEW 21 (13: 15 - 25): Well, a 25 million dollar investment would shut this plant down. It would be a major hit on the whole company. 25 million dollars in a billion and a half dollar investment is round off error. So, you can't impose the same sort of ... you know they have a wild life preserve for a million and a half dollars. Well, that's really nice. But what's a major expansion here would be $100,000 to $500,000. We're not going to build a million and a half dollar wild life preserve. We might plant a few trees. I get the feeling of some push by Alberta government sometimes. Why don't you go to a closed loop system? Well, as much as we can, we will.

D - 58. INTERVIEW 26 (6: 44 - 48): When you look at even our company, our top executives are spending a lot of time co-ordinating things. A lot of time and energy spent not running the business, but defending the business. You take that across all businesses and that's a huge cost.

D - 59. Interview 38 (2: 41 - 43): (Hiring of an environmental officer.) Right, four or five years ago. We always used to have the safety and health, well they called it the environmental department but we didn't have one as such a separate department, or anyone that could answer for it. Nola has sort of taken charge of that.

D - 60. INTERVIEW 26 (8: 37 - 40): There's probably some economic payback (to going beyond regulation), but not a return. It's not all lost. The more stringent your guidelines or procedures, the better your operation will be. It's not all lost. You get some side benefits from it.

D - 61. INTERVIEW 21 (19: 1 -7): That can be (cost savings with environmental improvement), but there are some things that are simply to reduce liability. For instance, we have some tanks. We have one of our raw materials in a large vessel and we have it dyked. If there were ever a leak or a spill, it would be contained. One would think that was adequate and at one time it was. The company has a policy now of impervious liners and secondary containment.

D - 62. Interview 38 (5: 19 - 23): Well, for us right now, we are into gainsharing, profit sharing, on this plant site, which helps a lot, that is some incentive. Any money that we save the company, we get a piece of, for the production end of it anyway. The environmental, anything that is included in our gainsharing package is measured and monitored, so everything has an effect on the bonuses that we get. So there is definitely a little bit of a prod there to keep you in line.

D - 63. Interview 38 (8: 16 - 25): When I leave the site I don't usually discuss much. Mostly just general chit chat. If they ask me what we make or something like that. As far as the process of plans that the company has we try to keep that under the bonnet. I don't find it advantageous to take the chance of maybe giving wrong information, and then having it come back on you. I don't need that. And part of that is to do with the pride that we have in the place. If something goes haywire, or something screws up, we want to know it first before it gets back to them. Its kind of an honor system all the way around, around here. I've never seen anything covered up, or prettied up to avoid what is coming out of it. It's all pretty straightforward and honest. Something that they've rammed down our throat from day one. So if you screw up let us know. So that we can avoid it next time. It's not prettied up, so it doesn't happen again.

D - 64. Interview 38 (4: 10 - 16): Well, ah, they won't sacrifice safety, equipment damage, any exposures, any environmental incidents. They don't want that. We're not to step out of line, or to cause, create, or avoid any of those situations. As far as making money, their (management's) true philosophy probably is to do the best you can, the easiest you can, and the safest you can. The three guidelines. And the safety requirements are very stringent. You don't stray off. It is reason for instant dismissal if they catch you doing anything that could potentially cause an environmental incident, especially in here working in the control center.

D - 65. Interview 38 (3: 1- 5): So that was a change too. And she (the environmental officer) makes a point of attending seminars and meetings at other plants in the area as well as in the city. Actually my wife is a security guard out at Celanese and she says that she sees Nola out there quite often. So she is making her loops, checking out their standards, and any recurring problems that they have with spills, leaks, clean up, these sorts of things.

D - 66. Interview 38 (8: 6 - 10): (Worker exchange of information between plants?) Naw, not really. Not so much with Sherritt, because we're not so involved with them for product exchange. But with Dow, I talk with my neighbor a little bit, and my brother-in-law who works there. So anything that he tells me I've probably heard already anyway. Usually if one of us is going into a shut down or something. We discuss procedures, or what we're doing. Just general chit-chat. Nothing too serious.

D - 67. Interview 38(8: 6 - 10): (Do workers exchange information between the plants in the vicinity?)Naw, not really. Not so much with firm F, because we're not so involved with them for product exchange. But with firm B, I talk with my neighbor a little bit, and my brother-in-law who works there. So anything he tells me I've probably heard already anyway. Usually if one of us is going into a shut down or something. We discuss procedures, or what we're doing. Just general chit-chat. Nothing too serious.

D - 68. Interview 38 (3: 21 - 27): But we don't have the manpower on this site to respond but they keep us involved and we do have the option to fire train at Dow and Shell I guess if we need to. We don't do a lot of that. There would be no fires here that we would actually fight anyway. We have monitors and other back up systems that we would use, so we wouldn't actually go into a burning building here. And there aren't that many men so that we could actually spare anybody. Unless somebody went down and we had to go in there would be no reasons, we would just turn on our balloon system and saturate the whole building. And flood it with water and be done with it.

D - 69. INTERVIEW 26 (3: 40 - 46): There is a uniting of force with all the companies dealing with chlorine right now because of Greenpeace. They have a chlorine coordinating committee now in the US and that's all the chlorine users and producers banning together to get the latest factual information. You see a lot of people trying to stay ahead of the problem by trying to improve the process.

D - 70. Interview 41 (6: 24 - 29): It's only in the last three years where things have picked up. This year is just going to be unreal. Every pound you miss not making, they want to know why. When you get some security, people start to think differently. It's showing up. The guys are coming up with all kinds of ideas of how to save at this or that.

D - 71. INTERVIEW 26 (5: 11 - 17): That's really what we have to do as an industry, as a country, is to make sure that the reactions that we take are to scientific fact and make sure there is a right proportion, otherwise we're going to be left competitively behind as a country. We can't make it. Other countries will jump in and make it with much more environmental impact than we will.

D - 72. INTERVIEW 26 (5: 33 - 45): No, it's North American (environmental regulations), and to a certain extent it's European. But, I don't think it will ever become Asian because just in the area of human rights, Asia's saying if you want to trade with us just keep your mouths shut. I think the same thing will happen environmentally. There's that huge country over there (China) and that huge potential workforce that could make lots of products for real cheap ... They will just pollute the world as we in North America force businesses to become unviable.

D - 73 INTERVIEW 21 (19: 1 -7): That can be (cost savings with environmental improvement), but there are some things that are simply to reduce liability. For instance, we have some tanks. We have one of our raw materials in a large vessel and we have it dyked. If there were ever a leak or a spill, it would be contained. One would think that was adequate and at one time it was. The company has a policy now of impervious liners and secondary containment.

D - 74. INTERVIEW 21 (15: 38 - 45): We have no underground storage tanks at this site. When this plant was built,we did. But we took them out years ago before they became a problem. We didn't take them out right away, but we said let's put a program in place. We know that they're only a few years old and they're in good shape, we're monitoring them. But let's do something while we financially can, because if you wait long enough...

D - 75. INTERVIEW 21 (15: 25 - 38): Well, maybe if you shopped around (getting insurance). But the cost would be astronomical because the potential liabilities are astronomical. A leaking tank contaminating a water supply. The clean up cost on that alone could reach millions and millions of dollars. Then all the civil litigation that would go on for years. ... So the real leaders in companies saw this developing years ago and said: "I don't want to be in that position with my company. Let's do things now before we get there."

D - 76. INTERVIEW 21 (20: 1-6): You've got to manage the business to provide good quality cost effectively to the customer so that they're willing to pay so that you can put money to the stockholder so that they will continue investing. All the while this has to be done in concert with the community because you have the privilege of operating in that area.

D - 77. INTERVIEW 23 (3: 7 - 13): We can be (at a disadvantage compared to third world production facilities), but I think in some ways it balances out in the wash. Our firm is a very strong company. We have anadvantage in that we have a very educated market, like people are very educated environmentally and they respect that (our good behavior) ... A lot of people more and more are buying a product not solely based on cost, but on a lot of other things. That's my opinion, really.

D - 78. INTERVIEW 23 (2: 24 - 32): Say a new piece of equipment you have at an initial capital cost of $100,000 or $500,000, but them you also have the operating cost year in and year out. You have to pay another who knows how much. All of that cash has to come from somewhere. So depending on if the government got really crazy and wanting us to do a whole bunch of things, we just couldn't afford to do all that. We would be having less and less profits and the shareholders would be screaming: What's going on?

D - 79. Interview 41 (3: 17 - 20): Well, 1985-86-87. That's when everyone started scurrying around and awareness was raised so quickly. That's when a lot of people started acting and doing things because they knew it was going to come.

D - 80. Interview 41 (2: 25 - 32): All of a sudden all of the legislation was brought forward, and it was all exposed. We couldn't do this because of that and so on. It came to a point where if we didn't do this we weren't going to stay in business. Threats were made, but that's no different than the police saying that if you don't drive under the speed limit, then you're going to lose your license.

D - 81. INTERVIEW 21 (12: 36 - 43): The regulations for the most part in Alberta are fair. They are very strict. You cross the line certainly enough times and they have the power within the Act and regulations that they can do all sorts of things, but that's where the fairness comes in. You don't necessarily get hammered for the first incident. It depends on the incident. And that's really what it needs to be. If there's something that could truly be considered an Act of God, that would be handled differently than gross negligence.

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D - 83. INTERVIEW 21 (12:47 - 13:11): If you weren't duly diligent, then there are a variety of measures the regulators have. I think right now, because these regulations in the Act are fairly new, they're searching their way through it and so is Industry. I don't have any major complaints. The only thing that I have a concern about in Alberta is what I perceive as an attempt by some of the people to improve the environment on the backs of companies. What I mean by that is I have had comments by some of the people in Alberta Environment: Well gee, maybe you could do something like so and so. Or somebody else. And that's a delicate thing. They know what all the companies are doing ... down to Calgary. I have no contact with companies in Calgary. And there may be a piece of new technology that I'm not aware of that really makes sense. On the other hand, you have to look at here's a maturing plant, a small capital plant.

D - 84. INTERVIEW 26 (5: 21 - 27): What they've done (the regulators) in some areas is they've set up that in 1990 your emissions were this and you've got to reduce them by so much by 1996, with no real thought on what's the cost or what's the impact. What's the balance? Will it shut the industry down? The Chinese will take it over and they will put stuff out regardless of the pollution and ten times the worker exposure .

D - 85. INTERVIEW 23 (25: 23 - 39): The whole scenario with dealing with government has changed so much, Originally it was they didn't care - we didn't care. We did what they asked, they just took it in (prior to 1990). ...It was almost like no care. The government had put these things in place years ago. Everybody was sitting there pushing their pencils. Half the reports probably weren't even read. It was just like: "You did the report? Fine. ..." There was no commitment from anybody. No care.

D - 86. INTERVIEW 23 (26: 20 -29): Things started changing, and all of a sudden, virtually overnight in the government's eyes, the public all of a sudden went from no care to: What the heck are you doing? What aren't you doing? Why don't you have more control over these industries? What can't we do this and that? The government was given a very rude awakening. They had to react. Because they were caught in the position of reacting rather than building something slowly, they threw a ton of things out all at once for the industry. That got us in a very bad state of mind.

D - 87. INTERVIEW 23 (3: 35 - 53): I would say a while ago they weren't really (government on the same wave length as the firm), but they've become more and more conscious that way because of what we've gone through. Since I started working in 1990, changes started happening rapidly in government. When I first came, environment was kind of a background kind of thing. I just had to put in monthly reports and we had a pretty standard license with everybody else. No great big requirements or anything. I think it was the following year in May, we got a new water license. Without warning, without a soul talking to us from the government, we got slammed with a 33 age license and our original license was something like five pages. It has so many requirements, so many reports we had to put together. Like a spill Response Plan. Do a characterization of your effluent, which costs a lot of money. Step up some sampling. Start doing some other sampling that if you fail you will be considered to be breaking the law and we can take you to court. All these things happened and it was like there was this hidden agenda and they just suddenly gave it to us.

D - 88. INTERVIEW 23 (6: 22 - 27): I think in some ways government does kind of scare people into thinking that we're all so horrible. Rather than say, this is how good they're doing and this is where we're going. They seem to just slam a bunch of regulations and the only thing you read in the newspaper is the bad guys who did something wrong.

D - 89. Interview 41 (4: 29 - 31): There's enough of these guys out there that will raise a flag (regulator staff) and you know that five years down the road there's going to be some type of regulation about it.

D - 90. INTERVIEW 21 (14: 36 - 44): Well, I think they're (the government exploring deregulation) exploring it because regulation costs money for crying out loud, be it for us or for the government. You pass a law, you pass a regulation, you have to monitor it, you have to prosecute. Part of the speed limit is not going to be any good if people know they can drive any speed they want. You have to prosecute. You have to hang a few people to prove that you are serious about that regulation. I think deregulation, if approached wisely and carefully could be good.

D - 91. Interview 41 (4: 52 - 5: 2): I think that some of it boils down to is to spend the money now and be prepared for what's coming so that we're sailing when it does come instead of hitting the wall when it finally does show up.

D - 92. INTERVIEW 23 (16: 19 - 37): Well, there are cases where I know something has happened where government has asked us to do something and I'll go and discuss it with Tom and Bill and they say: No. This is going to cost us this and this and I'm thinking it's a good idea because I can see something they can't because I'm involved in some of the sampling and monitoring the different streams, I think if I do this it will help me with that other thing I'm doing and that way we can make government happy by doing this much of what they're asking and on and on. So, I end up trying to convince them that maybe we should do this, but offer only to do this much and give them the reason. It's too expensive to go further than this. We'll do it in steps. If that comes out with no problems and you get what you want, then we'll stop, but if we find there's a real problem, we'll go to phase two and continue that way. So, sometimes that's how things will happen. Sometimes I've been put in that position and so has Tom. They'll say no we won't do it and Tom will say" Let's talk about this for awhile.

D - 93. INTERVIEW 21 (13: 36 - 44): Certainly with some people (in government not having a clue). I think that's the case. In general, I'm not really sure. I think if you get up to a high enough level, they're more sensitive to that. But it could be at the level that we interface with, they don't. They're well meaning. They have a mandate to improve the environment, and that's great, but there's a balance in there. What's the point of our firm ? What's the point in Dow or Dupont? It's real crass, but to make money. They don't make money, they're out of business.

D - 94. INTERVIEW 23 (23: 10 - 19): You could go look through a lot of Alberta regulations, Alberta licenses, all kinds of things and you will find ideas right out of EPA regulations. ... Almost word for word. You can't blame them. Why recreate the wheel. If somebody else is already doing it, if there's going to be problems, let them handle it.

D - 95. INTERVIEW 21 (12: 21 - 36): Even within Canada you're probably seeing more command and control in places like Ontario, There's a bit of a mixture of cooperation, but some command and control. It's a balance and I really wouldn't want to be a regulator. They're torn all sorts of ways as well. They have the public breathing down their necks to solve all these horrendous problems which probably don't exist in fact, but perception is reality. That's a good CCPA term. You have to deal with those realities. It doesn't make sense and I'll cite the examples of PCBs and asbestos that the facts do not bear it out, but trillions of dollars have been spent in North America dealing with perceptions.

D - 96.. INTERVIEW 26 (6: 41 - 44): But they (Environment Canada) are saying some good things, much more than the EPA in the US. They (the EPA) seem to be more emotionally driven and more responding to the environmentalists.

D - 97. Interview 41 (4: 1- 6): A lot of the old guys are also gone now because of the changes in the government over the last two or three years. A lot of the old mentality or way of thinking is gone. There's a lot of new blood in there and it makes a difference. People have new ideas and think differently. I really don't know how much of an impact that has had.

D - 98. INTERVIEW 23 (1: 51 - 2: 7): So, say the government comes to us and says they want us to take emissions down to such and such level. And we say: Well, it's going to cost us a million dollars to do this. So then, that's where my role would come in as trying to negotiate along with Tom and Bill, the plant manager, for getting what they want us to bring down in emissions, or whatever it is, to a reasonable level that we can work with. But we still want to do a certain amount of things that way. We still want to be good environmentally, but we have to also watch out for our company profits and so forth.

D - 99. Interview 39 (3: 28 - 29): I'd say it is 90% education. People realizing that you just shouldn't do this sort of stuff.

D - 100. INTERVIEW 23 (7: 17 - 24): It (the release from Federated Coop in Calgary) was extremely embarrassing for Alberta Environment and the public was outraged that here this had happened and people actually felt sick and the government couldn't do anything about it. And they said: Who are you? You call yourself Alberta Environment and you can't do anything about this? From then, I think that's when the wheels started turning. They did say, when our license came in 1990, what is going on?

D - 101. INTERVIEW 26 (16: 30 - 43): This gets back to the government issue because it's fairly easy to pick on an industry because you get a hundred people yelling at you. But you put out regulation that you've got to get your car tested once a year and if it doesn't meet it, it's off the road, you're going to have a whole bunch of people yelling at you. I think that if that happened I would take it OK. Tom would take it OK. We'd say it was great, but there's a whole bunch of people out there that like to drive without licenses. Drive without insurance. And they don't really give a damn. That unfortunately is the bigger percentage of the people. It's these people that will jump, yell, and scream. The politicians got to get himself re-elected. The curse of our society is being a democratic society.

D - 102. Interview 39 (4: 51 - 54): Some things are licensed here and some things are not. We have license stacks that we have to report on a three hour basis, but there's lots of other places we could dump stuff and no one would ever know about it. It's just not the thing to do.

D - 103. INTERVIEW 21 (16: 28 -32) I'm aware that is in their arsenal of things that they can use (a closure order from the government). That that's there. They can pull your operating license. Occupational Health and Safety can shut you down and give you a stop work order, but that's not really something that we've talked about here.

D - 104. Interview 39 (4:30 - 44): Yeah, but somehow we used to get away with it fifteen years ago. We are required to report if we flare and we will. We've gotten so strict now that we had a nine pound release of Freon as an environmental incident here from one of the freezers on site. That's not much more than a domestic fridge and they get thrown away all of the time. They class that here as an environmental incident. As far as I'm concerned, industry is a lot safer than a normal household. ... Especially with all the chemicals, pesticides and fertilizers going into the drains coming from people's lawns.

D - 105. Interview 41 (7: 28 - 30): It's (Industry) so far ahead (of the public) that the rest of the public is a long way from having the same information that industry has.

D - 106. Interview 41 (7: 17 - 24): With all this recent legislation of handling dangerous goods and stuff and some of these farmers don't have a clue about this stuff. They think they can throw a barrel of purple gas in back of their truck and just drive around where ever they want. Maybe that's ok now, but in a year or two they'll have to have a license. They can't visualize that it's going to come to that. We know, from industry, that it's coming down the pipe.

D - 107. Interview 41 (7: 41 - 46): I look at some of the smaller private businesses locally, like the one my wife works for. And some of the stuff she tells me just makes me shudder. The information is there and the legislation is there, but a lot of people don't know about it. Somewhere down the road they're going to get a rude awakening.

D - 108. Interview 41 (7: 36 - 41): The information, like stuff that my kids in high school should know, and it's not coming out. If we can't get to them now, do you say that we've lost them? If he doesn't get some of that, when are they going to get it? If industry ran like that, you'd be dead in the water.

D - 109. INTERVIEW 23 (12: 31 - 34): Exactly, Not in My Backyard Syndrome. And they (the public) don't make the connection all the time that every product that they buy is made up of these things. If nobody makes it, they don't have these products anymore.

D - 110. Interview 41 (8: 53 - 9: 6): Either people have lost interest or are too busy to stop and think about that anymore. If you get the majority of people having no time, and then you lose touch very quickly. You lose touch and then you lose interest, until something major happens. I don't know why it's gone like that but certainly a big part of it is just the way people live now. Even comparing my life style in 1985 to today and it's not even close.

D - 111. INTERVIEW 26 (9: 5 - 9): And a lot of things you do really don't pay off, but they are an improvement. We're in a situation where a lot of our product is powder. We may spend a lot of money to save a very few pounds, but we do that anyway because it's environmentally friendly to your neighbors.

D - 112. INTERVIEW 23 (14: 36 - 43): Nobody is going to notice that (dumping used engine oil down back alley drain). They are not really concerned about that. But amazingly, one of the main focuses of the whole Environmental Enhancement Act, the government told us, was to capture the Mom and Pop operations who are really causing a vast amount of pollution because there are so many. They are small, but if you have every tenth person on the block dumping oil down the drain, you've got a big problem.

D - 113. INTERVIEW 21 (18: 4 - 15): The government's pretty good. That's the business I was talking about leap-frogging off other plants. We get a wish list. But it's our internal auditors coming from other plants and head office saying: You know, you could improve this area if you ... maybe they don't even have a suggestion on how to improve, it's just I think you should improve in this area. So, it's not regulatory driven. It's just improved performance. Come our next capital cycle, it's expected and demanded that we have identified in our capital budget the things driven to meet regulation. And then, we have our shopping list of things.

D - 114. Interview 39 (1: 47 - 50): There were a lot of people here who really didn't understand what it was all about. We used to flare an awful lot which produces hydrochloric acid which used to kill the trees, but we stopped that years and years ago.

D - 115. Interview 39 (5: 1 - 6): I'd never worked in a chemical plant before I came here and you could say that for probably 80% of the people that came here because there was no chemical industry in Alberta. A few came out of province and few came from Sherritt, but more people were right off the street.

D - 116. Interview 39 (6: 32 - 36): . (Personal values in sync with firm values?) I would think so. There's been a few people where it wasn't, but most of them have been weeded out over the years because we've downsized an awful lot in the last four or five years. We had nothing to do with who went and who didn't, but management did it through the operation side.

D - 117. Interview 41 (2: 44 - 47): Management has pushed it from the top down and the bottom people have obliged. If somebody would have said ten years ago that this is what you're going to do, I would have told them they were crazy.

D - 118. Interview 38 (9: 33 - 40): I'm not cynical about their executive level. I do think they are making every effort they can to keep the individuals and the environment clean. I can see that, if you're saying they are afraid of higher ups or pressures because of incidents, but I don't know if they would. If it is human error, definitely, in the FIRM D organization they would pay for it, they would either be gone, could go as far as legal action against them if it was deliberate or negligent. But I don't think it is a fear that is one anybody shoulders. It is 90% of the issues I've seen here are mechanically related error. I have seen some human error, granted, there always is. But more mechanical.

D - 119. Interview 38 (6: 18 - 22): Well Tom and those guys I think are right on the money, they want us to have at least a little bit of pride in our jobs and what we're doing here. They won't waver from that line about environmental and they right nasty if they figure that we're trying to cover anything up boy they're onto you.

D - 120. Interview 38 (5: 30 - 34): If everyone works together we all get a piece of the pie but I don't think they use that as the real prod, they strive for personal pride as a company. They want everybody to be proud of working here, of their jobs and everything. And I think they are looking at the profit sharing and the gainsharing that way, as an actually reward for doing your job.

D - 121. Interview 39 (5: 34 - 39): Once it becomes a way of life, it's a slow process, but it does become a way of life. We have gradually built our plant so we can recover anything. We've only allowed to dump a certain amount and it's a minute amount. I think like two or three kilograms. They keep track all the time. There's an environmental report everyday.

D - 122. INTERVIEW 21 (20: 35 - 38): It's all part of the culture we're trying to promote within the company, within each site. People having ownership and I don't mean financial. That's part of it, but real internal ownership of what the company's doing.

D - 123. INTERVIEW 21 (20: 45 - 47): The best media relations we have are employees who are out there honestly and sincerely advocating the company's position.

D - 124. Interview 38 (4: 21 - 23): Personal safety, environmental stuff and anything related to safety and environmental is top priority and they still stress that on every one of our mandates around here. They will not sacrifice safety for production, ever. And they are really strict about that.

D - 125. Interview 38 (10: 15 - 20): Like I say, it's personal pride, as well as a common goal for the company. The company is fair, and they're honest. I don't know if everything they tell you is on the up and up, but they will always talk to you. There is always someone you can approach with a question. There is always information coming across the mail, and all sorts of literature laying around if anything is changing. I don't think there is any great secrecy. On plant site I don't think that they really hide anything. It's all common knowledge.

D - 126 Interview 41 (3: 35 - 48): Well, we kind of went through that (lack of trust from the government) after we had a couple of releases back in 1989 and all the trouble we had with the government and the steps we took afterwards to make sure that it didn't happen again. It was a battle believe me. That lasted for maybe two or three years. Once all was said and done, we were one of the few places that got commended for the path that we chose to take to satisfy them that it would never happen again. From the start they just simply didn't believe us, just like everybody else. From just talking to Nola a bit, because she's the one who interfaces with the different departments, she says it's a piece of cake. She can almost read what the guy is going to say because when we tell them something they know we're going to do exactly what we say.

D - 127. Interview 41 (7: 35 - 36): (Who leads, Industry or the government?) I think they're pretty close. They're running neck and neck.

D -128. INTERVIEW 23 (14: 9 -15): Industry's a driving force too. If one of them in the area did something really nasty and started being a bad actor, everybody suffers. So, it's as much in our hands as it is in government's, as it is in the public's. We all have responsibilities for our actions and realize that we are not an island. Everybody is affected.

D - 129. Interview 39 (3: 33 - 36): (Worker or management driven?) It's a bit of both. The worker's got to care as well because management's not here three quarters of the time. We run this plant and don't see anyone on week-ends because we go home at 6:00 in the morning (and management arrives at 8:00).

D - 130. Interview 38 (5: 38 - 40): Yeah, I don't think it is just a pat on the back, they want you to be happy here. Well the pay is good and it is consistent, and there are a lot of people looking for work, so I can't complain on that end, they've taken care of me for a few years.

D - 131. Interview 38 (9: 7 - 13): They do pride themselves. The whole firm D organization, they are not big on monetary rewards, they would rather have a trophy, a plaque, a jacket, team logos, things like that, more so than money that is going to be spent and forgotten about. So I think some of that does boost the morale. It gets you kind of wound up with the company a little bit. I'm not saying I'm really in favour of that. Money talks. There are some nice jackets and things that we've got. It's not something that you've got for five minutes and its gone. I think it is partially, the pride maybe. Individually or as a group, it is probably stronger as a group.

D - 132. Interview 38 (10: 6 - 11): Yeah, if someone out there gets hurt it makes it tougher for everybody. If they aren't following procedures, they'll say that the procedures aren't working and they will tighten them up some more. If they are satisfactory, then why mess with them. The culture amongst, well our crew is probably one of the tightest. One of the tighter ones that works the closest together. We do have some teams and they are individualists eh, so we socialize well on this crew, we're pretty laid back.

D - 133. Interview 38 (6: 37 - 44): If it was something I'd done intentionally, or missed because I was sleeping in the control room you can rest assured that I would have got a couple of weeks off, or just let go. They won't fool with that stuff, I know they won't. But they are honest about it and they tell us, so we know what to look out for and everybody minds their ps and qs so it is not a problem. They do a lot of training here, like I say, this operator certification we just went through, fork life training, environmental, fire and rescue, anything related to the plant pretty well, we can get. And if we can't get it here, they will send us somewhere to get it. They're pretty flexible, if it is something that we need you can usually get it.

D - 134. Interview 39 (1: 42 - 43): A lot of the time it was vented to the atmosphere because we didn't know what to do with it.

D - 135. Interview 41 (1: 50 - 2: 5): Well, emissions, what we used to send to the atmosphere and water. Government legislation has driven it a way, but just the awareness and care that people take now is different. They're watching everything that we do. They know themselves that they just can't dump it on the ground anymore, not just because the government says. Before we would have slopped it on the ground, turned around, and said nothing. Through awareness, education and legislation, people have just said we can't do that. It's not a problem anymore.

D - 136. Interview 41 (2: 23 - 25): I think on this site the biggest change came when we started when we hired an environmental engineer back about six years ago. That's when the biggest change happened.

D - 137. Interview 39 (6: 6 - 8): It spills over into your home like too. Maybe use less insecticides in the garden or something. I picked it up from here.

D - 138. Interview 41 (7: 8 - 12): I also do a little bit of farming on the side. There's things that I used to do, like with oil, and now I tell my kid when he's changing his oil to make sure he puts it in a container and it goes into a waste drum. A lot of that has come from here.

D - 139. INTERVIEW 21 (6:51 - 7:15): Now, we had some incentive 20 years ago in that our raw material, was discovered to be one of the few known human carcinogens. There are thousands of suspects ... but there are probably less than two dozen known human carcinogenic. Vinyl chloride, it turns out, is one of them. It causes a rare form of naturally occurring liver cancer. It turns out that there is a higher than normal incident rate in PVC workers. The process that we went through in the 50s, 60s and early 70s our workers were exposed to fairly high concentrations over a long period of time. At the time they didn't realize what health effects (were possible). They (the firm) identified in 1972 or 1973 this relationship and began a whole lot of things plus the regulatory environment changed dramatically. The firm came forward.

D - 140. INTERVIEW 26 (2: 11-17): My experience with that dates back to 1972 when we identified a cancer causing agent in PVC and made it known world-wide and very quickly jumped in with some technology that made it possible to get the product out with very low levels of toxin. And then they put huge pressures on the plants to get their building levels and their environmental levels down.

D - 141. INTERVIEW 21 (17: 1-7) That's the extreme. Fear of somebody else shutting us down isn't so much the problem. It's shutting down that's the problem. We don't want to be down, that's lost revenue, but we've done it to ourselves. We don't want to shut down, so we're trying to solve our problems before they become a shut down problem.

D - 142. Interview 39 (3: 49 - 51): (Are their guidelines about proper behavior?) There must be. There's guidelines about flaring. The flare is basically a safety device. We do not flare. We shut down. It's as simple as that.

D - 143. Interview 39 (4: 18 - 25): It's (flaring) not really bothersome to the community. It irritates us because we see other plants flaring out here. Our license says that we cannot flare. When we flare we produce hydrogen chloride which will mix with water which make hydrochloric acid (acid rain). It's there just for emergencies. The amount that we would flare would be nothing compared to what some other plants let out. We make certain we don't flare.

D - 144. INTERVIEW 21 (16: 37 - 54): I'm not aware of any of the larger companies, but smaller companies Alberta environment has prosecuted small and large. But I'll give you an example of environmental awareness and shut down. We have an emergency flare here. You pass a lot of hydrocarbon facilities and you saw Dow's today. At one time, we used to frequently use it. We had more process upsets, for one, but we had less of a concern, I think. That's ten years ago. We've changed. We had a problem where we did have a major flaring incident and people noticed it and we said: Gee this isn't right. Let's not use it again. We've had upsets, but we shut ourselves down. That's easier down here because it's a batch process we can shut down real easily, but where we've had a case where we're afraid we might end up flaring, we shut ourselves down so that in 1994 we not used that flare at all. We used it in 1993 for, I think that there was one incident for about 60 seconds.

D - 145. INTERVIEW 21 (8: 35 - 45): What I would be interested in (if I lived near the plant) was have they done the appropriate things to insure it's safe, safe as practical and should something go beyond that, they've got plans in place to handle it. That's what we began doing, and we fumbled around for awhile because with an industry that's never talked to the public, how do you begin doing this? So, you make some mistakes. We've begun than process. We still have a ways to go. We've had fifty years of the hard nuts and bolts end of things, but we've only had a few years of the softer stuff, dealing with the people. So, we're still learning.

D - 146. Interview 41 (10: 4 - 12): I don't really see that this site will be changing much. We're looking at stream-lining the system and making it as simple as possible. That's the process we're in now. Simplify what we need and do away with what we don't need and let's be smart with what we do. So, fifteen years down the road, I don't know. We're just preparing to make everything more simple and easy. If it's easy and simple, the chances of something going wrong are reduced. So then, the risk to the environment is that much less.

D - 147. Interview 38 (8: 38 - 41): Well yeah. They don't want us being lax about anything. Environment or safety. They harp on that every meeting. They start off with that at any meeting we have around this place. And Bill usually has a blurb, and Tom, and Nola will say something about the environmental stuff. Which I don't mind. It keeps everybody informed.

D - 148. Interview 39 (5: 43 - 46): I don't know if it goes to Cleveland, but there's a daily report out of this plant. It's produced out of Tom's office. Anything out of the ordinary would be reported to Cleveland for sure.

D - 149. Interview 38 (2: 5 - 8): Yeah, we have standard safety meetings on shift as well as four compulsory, I guess they are six hour meetings, that are mandatory for everybody on site.

D - 150. Interview 39 (7: 10 - 17): The environmental bit would be a part of a meeting. There would be a general meeting with what's going on with the company and where we're going and safety and environment would come up at most meetings. There's monthly safety meetings on site for the crew that's basically in the control room. Then there's monthly safety and health committee meetings where each crew will have a guy on, but this is basically when the boss comes back from Cleveland.

D - 151. Interview 38 (2: 12 - 18): Well, now that everybody on the plant is on e-mail, so it is really easy to relay the information with our environmental people. Nola is our environmental engineer, she is constantly sending our e-mail of updates, and changes that we get, so you don't have to be on shift, it can be on your mail and an awful lot of peole are on the e-mail at home on their own systems, so we have access to it if we want. It's not the sort of thing that gets delayed. It's common knowledge pretty quick. The accessibility of the information has improved greatly around here..

D - 152. Interview 38 (2: 22 - 28): Personnel monitoring has tightened up considerably. We wear little badges for vinyl exposures, and when I started here, I can't remember what the limit was, but we would have an eight hour exposure that's considerably higher than what we have now, down to nil practically. Anything over two parts per million on a daily exposure we have a sit down, and it is researched, it is not just filed away. They look into it and find out why we are getting exposures. And that is something that we never used to do. And that is something, they've really tightened up on that. So for health benefits, that's improved considerably.

D - 153. INTERVIEW 21 (17: 28 - 48): . We do a management systems audit. They're not really out there peering under the rocks and ... if they see something and it's amiss, then they'll identify it, but it's looking at the management systems that we have here. Now, we're very open about it. It's pretty easy. It's internal anyway, but really bare our souls. Then comes the report. There are some items that we need to do to meet regulation. For instance, our operating license. It's a very complex document these days and somebody else will read it and say: Here's a twist. If I were a lawyer looking at it this way, and sometimes we get out lawyers involved, maybe you should do thus and so, where we were real clear, but we interpreted it differently. So, now we have to get that license amended to fit what we're actually doing or change what we're actually doing. It is maybe minor. It could be major sorts of things. If we were doing something that did not meet regulation, that would be identified. Sofar, all of the things are technical legal type things so I don't have any fear. Then there's a whole long shopping list of recommended things to improve performance.

D - 154. Interview 39 (2: 1 - 4): (What caused the major shift of behavior?) Definitely prior to 1985. We were bought out in 1985, but things had started to change before then. The new owners were a stricter company. They had more of an idea about the chemical industry.

D - 155. Interview 41 (5: 51 - 54): So, a lot of it is our leadership that is certainly steering us the right direction. Before (prior to the new company being formed) there was such diversity that vinyl to them wasn't a big part of the business.

D - 156. Interview 38 (5: 45 - 6: 5): Oh definitely. A lot of things that I would have done at home not all that long ago I give my head a shake now. I think about the way that I'd mop up an oil spill then, and would think nothing about dumping it in the backyard just a few years ago. Some of them little things I've definitely changed. Fire pits burning different things that you knew were going to be toxic when you burned them. You avoid that now, and those are things that unless you are around a chemical plant you probably wouldn't even realize. Lots of the family that burn all sorts of stuff that would scare me to be breathing it. A lot of it applies to your own life too.

D - 157. Interview 38 (2: 41 - 43): (Hiring of an environmental officer.) Right, four or five years ago. We always used to have the safety and health, well they called it the environmental department but we didn't have one as such a separate department, or anyone that could answer for it. Nola has sort of taken charge of that.

D - 158. Interview 41 (2: 32 - 38): Through the education process, there came a big surge of information from corporate office and from the government. All the critical things soon came to light. Then it came to: What are we going to do to comply and meet all these requirements and that's where the public knowledge came in. Everybody started to understand why you couldn't just dump stuff on the ground anymore.

D - 159. Interview 39 (1: 22 - 31): Major changes, I would say. No one really cared sixteen years ago. We were basically a bunch of rookies back then anyway. We had a really hard start up with this plant because it was a French process and no one really knew what was going on although we did have some guys up from Texas. ... the process is actually a suspension process which is a different process all together. This is fairly uncommon in N. America.

D - 160. Interview 39 (3: 17 - 19): Well, I've seen people trying to get a pump going by hooking a hose to get rid of vapors which no one would dream of doing now.

D - 161. Interview 41 (1: 44 - 46): Just the awareness of people on site alone has changed. There's things that we used to do that if we got caught doing today, we'd be dead in the water or even in jail.

D - 162. Interview 39 (2: 22 - 25): That (Bhophal) changed a lot I'm sure. Not overnight, but I think it made a lot of companies pull out of chemicals. I think that's why we were divested, because we (a chemical plant) didn't fit in with their new image.

D - 163. Interview 39 (5: 18 - 21): Management is driven by the head office in Cleveland and they're very strict. Once you get the idea that you should be good to the environment, you're pointed in that direction.

D - 164. INTERVIEW 21 (7: 46 - 51): Oh no, that's not irrelevant (Bhophal). That created quite a stir in the chemical industry. There was a lot of soul searching done at the time. I don't think, at this plant, we made any significant changes as a result of that. I think that we were headed in the right direction. We did stop and take stock of what we were doing.

D - 165. INTERVIEW 21 (16: 4 -13): (Eventually some blunder will happen and the company will be gone) Well, it depends on the company and the plans they have in place to mitigate the problems. Something will go wrong here. I hope not in the years I'm here. I hope I'm retired. I hope it never comes, actually. But what we have is a plan for the likelihood it might. We're going to have a fire or a release or we'll have a crane in working on a project and it will fall or who knows what. Our plans that we have to mitigate the problem at the time and downstream, hopefully will keep the company in business. That's what we're paid to do.

D - 166. Interview 41 (10: 12 - 16): But, as long as you're handling chemicals, there's always a risk no matter how simple you get things. A barrel of anything can fall and break open and it doesn't matter if you employ 100 people or ten thousand, it's a risk to the environment.

D - 167. INTERVIEW 23 (19:50 - 20: 11): People are starting to realize the changes the company has gone through. That continues with attitudes in environment, or health, or safety. Their attitude is very much a part of how people are going to think in the company about them ... Because they go home. They've got families. Their families know people. The discussion gets around. How your company feels about things. So, I think leadership does have a big part of it. And the whole idea about vision, we've written vision statements. We are following them.

D - 168. Interview 38 (7: 5 - 8): I think they (the firm) worry more about the community (rather than the employees). Let's face it, if you get the public hot on you here you might as well close the doors. They do have some concern for employees, in this company anyway I've noticed. They are not out and out negligent to them but there is a fine line there where they're have their priorities a little different from what I would like to see.

D - 169. INTERVIEW 26 (6:16 - 19): Perception, I think, is the biggest fear. I don't think there is anybody, certainly very few people, in industry that wants to harm the people that work for them, wants to harm their neighbors, or wants to harm the world.

D - 170. INTERVIEW 23 (26: 1 - 8): You've got to realize that Canada has always, in my opinion, sat back and said " Look at us with the wide open spaces, beautiful forests, mountain streams you can drink out of. In the States you've got Love Canal, and over in India there's Bhophal, but we're perfect. We're doing great. And everybody would point to Canada and say: Wow. You've got a beautiful country. And I think we all sat back and said: Yeah, we do. And nobody cared.

D - 171 INTERVIEW 23 (26: 13 - 15): I think Canadians in general were much more complacent about environment. It took them a lot longer to come up to speed.

D - 172. Interview 41 (6: 52 - 7:3): I don't think the public knowledge is there anymore. I'm not saying that industry is hiding anything , because I think we're more open now than we've ever been with neighbors and the community, but everything is just coasting now.

D - 173. Interview 41 (9: 33 - 41): If there's been some rapport established with the community, it makes his job (leadership's) a lot easier. A lot of people here live in a wide range of communities and impact a lot of places. It's money for the local communities. Like, me living here is supporting the community by paying taxes and buying local and stuff like that. It's a give and take. The local community has never pressured us into doing something for the community. There's a lot of things we've done, like donations to a hockey team or whatever.

D - 174. Interview 39 (8: 20 - 25): I think you (the community) get used to it. I'm sure there was a lot of concern when this place first started out. They'll probably had to go around and tell everyone. I think Kim might remember that because he was more tied up in that. I think even in those days you had to be in touch with the neighbors to a certain extent. They were tax payers.

D - 175. INTERVIEW 21 (9: 1 - 17): We've toyed with the idea of a Community Advisory Panel. The thing is, if you look at our community, the geographical radius and that pulls in appropriately fifty households. They're a range of people. Farmers, people who are renting, many who work in the area at other chemical plants. There's some concern, I sense, from them. I don't think it's an inordinate amount of fear, but some concern from some of the people. We've tried to talk to them. We search for ways to better communicate with them. You know, what's the best way to communicate with fifty diverse householders. It's not quite like the city of Fort Saskatchewan who's sitting on our border, we might be able to use other means like putting an ad in the paper. What paper do we put an ad in here? We could put it in the Edmonton Journal and we'd hit half a million people, but none of them even know where we are.

D - 176. INTERVIEW 21 (8: 35 - 45): What I would be interested in (if I lived near the plant) was have they done the appropriate things to insure it's safe, safe as practical and should something go beyond that, they've got plans in place to handle it. That's what we began doing, and we fumbled around for awhile because with an industry that's never talked to the public, how do you begin doing this? So, you make some mistakes. We've begun than process. We still have a ways to go. We've had fifty years of the hard nuts and bolts end of things, but we've only had a few years of the softer stuff, dealing with the people. So, we're still learning.

D - 177. Interview 41 (8: 19 - 27): Actually, we usually have a fairly good turn out (to open houses). We haven't had one now for about two years, but we've usually had a fairly decent turn out for ours. That was mainly because we were a fairly new company yet. If anything every happens at the plant, you phone the one number and all the neighbors get the same message. It's this thing they've got set up with the phone company that's a page system. So, you're not telling one neighbor one thing and another something different.

D - 178. INTERVIEW 21 (9: 28 - 37): Well, we did have an open house a couple of years ago. It was by invitation only though. What we did was deliver invitations to the neighbors within the five kilometer radius. ... We had a dinner, sort of a BBQ, and tour and sort of a sit down. I'm trying to remember how many people. Fifty would be a number that probably ...

D - 179. INTERVIEW 26 (10: 15 - 30): We're a very low profile plant. Our biggest stakeholder would be our immediate neighbors. We've had in the past one complaint about the noise which was a legitimate complaint. We had some air blowers that had silencers that weren't the best, so we put in new silencers. We phoned her back afterwards and asked her if she noticed a difference and she said she wanted to think about it. She phoned back afterwards and said: "Yeah, we don't have to turn our television up." She was really appreciative. We actually went over to a neighbor. We try to keep track of five kilometer neighbors and we had them over about a year or two ago for an open house. It was just a great fun time with no particular problems. We hope to have the chance to do that again. Just bring them in and talk to them and it was just a fun experience and they went away quite happy and feeling a lot better about the area. D - 180. INTERVIEW 23 (6: 3 - 8): But when we go to review next time, under the new regulations, we have to hold public forums and things like this. And I think even though it's going to be very difficult to organize and you're going to be afraid, like of the people who are going to be overly concerned about the environment. D - 181.

Interview 38 (7: 35 - 41): (Concern with neighboring farmers?)I don't think so. That last blow out that we had, we sent people out minutes after it happened. To canvas people, to inform people what was going on. This is quite some time back, a few years back. It's been a couple of years since there's been anything worth talking about. If we have say a spill here, vinyl leaks something serious, the horn blows, any calls we usually handle through the control room here, but they usually appoint somebody to sit in here and talk to the neighbors. Sure. They would send people out to inform the neighbors, and they do try to have an open house here every year, and invite people in and answer questions.

D - 182. Interview 41 (8: 53 - 9: 6): Either people have lost interest or are too busy to stop and think about that anymore. If you get the majority of people having no time, and then you lose touch very quickly. You lose touch and then you lose interest, until something major happens. I don't know why it's gone like that but certainly a big part of it is just the way people live now. Even comparing my life style in 1985 to today and it's not even close.

D - 183. INTERVIEW 23 (16: 49 - 17: 2): The other driving force might be that it could really be a boost on our public image period. If we do this thing, it could really boost the way people think of us. We could say: We've done this and here's the proof. We can tell you in fact that we do not have this XYZ chemical which is so horrible and yucky in our stream because we've tested for it at a cost of x$.

D - 184. INTERVIEW 23 (17: 49 -52): It's more like if you're interested and you'd like to know, come and ask us and we'll tell you what we're doing. We don't feel the need to go stand on the tallest hill and yell it out.

D - 185. INTERVIEW 26 (14: 6 -7): The comment of selling newspapers comes into every facet of reporting. Some of it really gets distorted.

D - 186. INTERVIEW 23 (13: 27 - 31): But what ends up happening is you've got the media who also end up throwing a curve because they are only going to publish the stories that are going to get your attention and that's what happens.

D - 187. INTERVIEW 23 (13: 5 - 15): I think that overall, we're still going to have the alarmists, we'll never get away from them. But I think it will die because people just won't be interested. Like the politician won't get in because he says: "I'm going to get tough and make zero discharge for everybody". People are going to say he can't do that. They don't care. They don't want the prices to go up anymore. I think that the majority see it that way. Other people who are, in some cases, less educated, or who are alarmist who I would almost say are less educated in some ways about certain things.

D - 188. INTERVIEW 26 (7: 10 - 16): We've said some things about the environmentalists and I don't think we'd be as far ahead if it wasn't for their actions. I just think we could get a better balance of their actions and just stand back and say "Look, we've achieved a lot". I sense it's happening a little bit, more environmental organizations are saying let's work together.

D - 189. INTERVIEW 26 (7: 23 - 29): I think you have to question what would have happened if we didn't have the recession, would that have gone that way. Maybe from that point of view the recession was a good thing because it brought more perspective to the situation. I think there are good environmental organizations, but I think there are some like Greenpeace that are just right out to lunch. We've got one locally that I haven't had time to deal with.

D- 190. INTERVIEW 23 (11: 27 - 31): When I say the public, I tend to think more of one or two people in our area or immediate area who sort of raise the alarm everytime the slightest little thing happens and assume that we're doing the worst thing possible.

D - 191. INTERVIEW 23 (11: 42 - 49): I think I call them the public because they go out and then educate, I don't know if that's the right word, educate with what they have the rest of the people and then some people who don't care hear this for the first time, or who think everything was fine, hear this and suddenly they become alarmed and they create a bad situation for everybody. Then we end up in the defensive position trying to say: No that's not true. This is the way it is.

D - 192. INTERVIEW 26 (17: 13 -17): And I guess that's discouraging to some people (extra taxes etc. for societal environmental cleanup), but I think it's probably lack of credible education. If they really understood what industry puts into the air compared to what the general population does, there might be some more understanding.

D - 193. INTERVIEW 26 (14: 19 - 24): The only that I can hope for is the opinion thing, and I was talking about the environmental response that we see now and hopefully we've seen the extreme of the opinion. I think almost everything that happens in our society goes this way. ... environmental people are losing some of their credibility.

D - 194. INTERVIEW 23 (25: 43 - 48): Well that was one of the really good examples (Federated Coop). That was one real eye-opener. I know that was a real driving force. But, in general, you could say in the background all the time there was this looming larger and larger awareness in the environment, save the planet, and all those whale t-shirts came out.

D - 195. INTERVIEW 21: (6: 1 -13): I guess a growing, maturing in the organization both inside the organization and outside. Every individual here in the past ten years, even if they weren't employed here, would be exposed through the media and just through discussion amongst friends and peers are growing in environmental awareness. So, there's society's pressures on individuals and then, within the company, a desire to improve in the past ten years. Each year you set new base lines. If we were to look at our objectives or base lines or whatever you want to call them, ten years from today's perspective you'd say: Oh my God, what a horrible job you were doing. But ten years ago was probably better than eleven years ago and we just ...

D - 196. INTERVIEW 23 (25: 23 - 39): The whole scenario with dealing with government has changed so much, Originally it was they didn't care - we didn't care. We did what they asked, they just took it in (prior to 1990). ...It was almost like no care. The government had put these things in place years ago. Everybody was sitting there pushing their pencils. Half the reports probably weren't even read. It was just like: "You did the report? Fine. ..." There was no commitment from anybody. No care.

D - 197. INTERVIEW 23 (26: 20 - 29): Things started changing, and all of a sudden, virtually overnight. In the government's eyes, the public all of a sudden went from no care to: "What the heck are you doing? What aren't you doing? Why don't you have more control over these industries? Why can't we do this and that?" The government was given a very rude awakening. They had to react. Because they were caught in the position of reacting rather than building something slowly, they threw a ton of things out all at once for the industry. That got us in a very bad state of mind.

D - 198. INTERVIEW 26 (7: 23 - 29): I think you have to question what would have happened if we didn't have the recession, would that have gone that way. Maybe from that point of view the recession was a good thing because it brought more perspective to the situation. I think there are good environmental organizations, but I think there are some like Greenpeace that are just right out to lunch. We've got one locally that I haven't had time to deal with.

D - 199. INTERVIEW 26 (14: 28 - 35): As I say, maybe the recession was a bad thing, but maybe there was some good things. It might swing things a little bit more to reality. You look back in late 70s when everything was distorted. Like, we're going to run out of oil by 1990. There was a huge swing, and now it's sort of come back. I think that's what will happen environmentally. There'll be some over-reaction and then things will go back.

D - 200. INTERVIEW 26 (14: 19 - 24): The only that I can hope for is the opinion thing, and I was talking about the environmental response that we see now and hopefully we've seen the extreme of the opinion. I think almost everything that happens in our society goes this way. ... environmental people are losing some of their credibility.

D - 201. INTERVIEW 23 (26: 34 - 40): I think things are really relaxed over the last couple of years. Really calmed down. More and more of this communicated back and forth and rather than just throwing something at you, they come with fee schedules and say: This is proposed. Do you have any input? Is there anything that you hate? Anything that you like. Anything that you'd like to change?

D - 202. INTERVIEW 23 (13: 5 - 15): I think that, overall, we're still going to have the alarmists, we'll never get away from them. But I think it will die because people just won't be interested. Like the politician won't get in because he says: I'm going to get tough and make zero discharge for everybody. People are going to say he can't do that. They don't care. They don't want the prices to go up anymore. I think that the majority see it that way. Other people who are, in some cases, less educated, or who are alarmist who I would almost say are less educated in some ways about certain things.

D - 203. INTERVIEW 26 (14: 28 - 35): As I say, maybe the recession was a bad thing, but maybe there was some good things. It might swing things a little bit more to reality. You look back in late 70s when everything was distorted. Like, we're going to run out of oil by 1990. There was a huge swing, and now it's sort of come back. I think that's what will happen environmentally. There'll be some over-reaction and then things will go back.

D - 204. INTERVIEW 21 (10: 1- 20): The risk from the chemical industry is the risk that people have to bear that's our of their control. ... And that's the one that people have the most difficult time accepting. 30,000 were killed in the US last year in automobile accidents, yet that's an acceptable risk. People live with that. They don't mind. That's a number I happened to read on the weekend in Financial Post or something. I don't know what the number of people that there are that died from cigarette smoke, but it's probably three times that, But that's also an accepted risk.

(If we had 40 people die in a chemical accident) ... that would be horrific. That would be totally unacceptable.

D - 205. INTERVIEW 26 (6: 52 - 7: 2): Because the consumer ultimately pays. Again, it's fighting emotionalism and not fighting fact. If you spent all that energy collecting the facts and then analyzing them and then dealing with real situations, you'd be a lot further ahead.

D - 206.. Interview 41 (6: 36 - 38): Well, with most of the environmental stuff, I don't think there's a choice. If you don't do it, it's a stay-in-business type thing.

D - 207. Interview 41 (6: 42 - 47): If you don't do it you're going to be shut down. It's that simple. It's coming to the point where you know where you have to spent it to stay in business. The big boon is sort of over. It's quieted down. You don't hear as much noise from them as you used to hear. That used to be in the news everyday.

D - 208. INTERVIEW 23 (2: 12 -17): If a firm is not environmentally responsible it's going to create, number one, a lot of headaches for itself, but number two, it's going to kill itself with public image and also it's going to have a hard time selling its product from that reason. It's going to bankrupt itself that way too.

D - 209. INTERVIEW 26 (6: 23 - 25): Yeah, but we also don't want to shut things down on emotion. That's the biggest thing, that people understand the factual stuff.

D - 210. Interview 41 (9: 17 - 21): I guess from a management point of view, you want to maintain an image and be known in the community, so whether it's through open houses or whatever, you meet people and talk about what you do at least give them some sort of satisfaction.

APPENDIX E

SELECTED DATA QUOTATIONS - FIRM E

E - 1. Interview 45 (3: 21 - 24): It's a dog eat dog world. Everybody's looking for a better price. You're always looking for a way to give the customer a cheaper product, but just as good, if not better. That's what drives the economy.

E - 2. Interview 46 (2: 17 - 27): Well, the stainless steel tanks have a higher integrity than the original drum. Also, you don't end up with a whole pile of drums that turn out to be waste in itself. Not only do they have to be purged and cleaned before they can be reused, which makes waste water, but most of the time they are just recycled. Firm E has been one company that's been pretty good with how they've dealt with emissions or with waste. They were never really big waste generators in comparison to other companies I've known of. But those are the two main differences that have really made a difference to our customers and to ourselves.

E - 3. INTERVIEW 10 (6: 12 - 30): (environmental behavior is a competitive edge?) Absolutely. And also a liability edge. If you look at drum disposal. In the US in 1956, we paid so many thousands of dollars for disposal of some drums at what they call a Class One disposal site. In 1992, someone decided to build a housing development there. There were 300 chemical companies that put drums in that disposal site. It now became a Superfund site. Of those 300 companies, four were still in business thirty years later. We paid to have our drums moved again and properly disposed of. The decision was made nine years ago to get out of the drum business because that is a tale that you can never get out of. No matter where you put those guys, someday somebody is going to come get you for them. So we've been spending, to date we've spent approximately 200 million dollars, in providing returnable stainless steel containers for chemical transport versus drums and we've eliminated twelve million drums a year out of our fleet. We were on Fortune 500 ten most improved environmental companies in 1993 because of the position that we've taken on that.

E - 4. Interview 46 (4: 32 - 34): It wasn't economical to take care of those risk factors at that point (twenty some years ago). When you start looking at putting in some sort of an interceptor system or something like that.

E - 5. Interview 45 (8: 19 - 28): You shake your head sometimes and wonder why people can't do the right thing. It costs too much and it's not worth their while. Cost shouldn't be a factor. What's a dollar going to do if people are dead. ...I think it's true of all the Firm E people. Most of them have families.

E - 6. Interview 46 (2: 32 - 37): Well, we don't want to have to deal with waste ourselves, as a company. Not only us trying to dispose of the waste, which is a cost factor, customers don't want drums either. They don't want to deal with the waste when that drum is empty. This is one solution that works well for them as well as for ourselves.

E - 7. INTERVIEW 16 (12: 36 - 39): I feel that, and being a member of the CCPA, that the way we're acting now,we're taking that step our selves to develop all those activities, and working with the government, that we will be able to maintain business in these areas just because of the way we're acting now, working together.

E - 8. INTERVIEW 10 (10: 27 - 34): But certainly public opinion drives that and their awareness, news, exposure,civil liability. You know, when you have executives board members of Fortune companies going to jail because they have not taken a position on the environment and knew it. Bata has to be a classic. (If) you knew about some of these things that were being manufactured and didn't change a thing about it, you're criminally liable, and that's a strong statement.

E - 9. INTERVIEW 10 (11: 23 - 35): We do a lot of training courses in the plants with the workers and one of the ones that we have that is most effective is household cleaning products that your poor housewives use and don't have any idea what they are doing because somebody on the TV told them to spray oxidize in their oven and crank it up to 600 degrees and go about your normal daily chores. Now if you were to expose any manufacturing worker to that, the unions would have you hung up by your toes. But it's OK for the wives to do it at home because the TV said it was OK. To me that is heresy. But we all do it. So we put on a lot of public safety presentations at these plants that we do so much of it at the workplace. How much of it goes home?

E -10. Interview 45 (4: 20 - 22): That will increase (regulatory pressures). They will find things that may not be regulated now, but with technology improving and finding toxins, it may then become regulated.

E - 11. Interview 45 (2: 19 - 25): We've also realized that we have to be very careful with chemicals and the products that we're dealing with. So, there's more testing of what goes into it and what we put into our landfills. Waste that doesn't actually degrade and they're digging it up twenty or thirty years later and it's not even more decomposed. That's one of the reasons we use reusable tanks instead of drums.

E - 12. INTERVIEW 10 (9: 14 - 17): (Customer number one stakeholder?) Absolutely. I think customers are the number one stakeholder. Primarily because everything is driven from them. Stockholders, management, profits, research, everything is driven by the customer.

E - 13. INTERVIEW 10 (3: 34 - 47): When you say specialty, you find the chemical per pound much more expensive than the commodity size. You've got four to seven engineers in there on a full time basis. Somebody's got to pay for that kind of service besides all the equipment support, research support. We spend sixty million dollars a year on research. More than twice than anyone else in the business. So when you start looking and anticipating the problems these plants are going to be faced with and now we started focusing on changes in the environment and environmental policy. What type of chemistries in the future will keep them (other chemical plants) out of heavy metal applications which will keep them burning cleaner on their new effluent discharge?

E - 14. INTERVIEW 10 (9: 17 - 34): What you have to balance is sometimes the customers don't know what's best for them. My customers in the oil industry right now don't think drum disposal is important. They still want to buy drums and they won't pay a penny more than they have to. So we have to weigh getting my customer out of drums versus what he's wiling to pay for that and how much of my stockholders equity I'm willing to give up to absorb some of that cost until my customers are willing to pay for it. ... So sometimes you have to kind of force the customer to look at that vision and say: "How much did that liability cost you?"

E - 15. Interview 46 (7: 47 - 50): This is partly too that you hope that those you are selling to aren't going to look at another supplier because they have a lower price. Hopefully they'll look at what kind of operation you have.

E - 16. Interview 45 (3: 21 - 24): It's a dog eat dog world. Everybody's looking for a better price. You're always looking for a way to give the customer a cheaper product, but just as good, it not better. That's what drives the economy.

E - 17. Interview 45 (7: 50 - 53): I guess it's up to the corporations that buy the chemicals to make sure that where they buy their chemicals from stick to the safety regulations and environmental regulations.

E - 18. Interview 46 (8: 1 - 10): I know that Firm E tries to be careful in who they sell to. I honestly don't know how effective it is. I can't say where it's been caught in every example because there's one place that I did work for about ten months. I was totally aghast. They were right in the middle of North York and they had water going I don't know where. They didn't really have much control. We'd clean out the blender and then it would be down the drain and it wasn't treated or anything. I was really surprised to see who was supplying them at this time. It was just about six years ago.

E- 19. INTERVIEW 10 (8: 40 - 50): We got involved in this because of an application for the Malcolm Muggeridge award. I'm not sure if you're familiar with that. It's a congressional award in the US given to companies that have seen the most improvement customer satisfaction. Xerox has won it. Federal Express has won it. We applied for it. We scored about where we thought we would, maybe a little higher than we thought we would, but the area we were low in was customer feedback. How are we doing? Where do we need to improve?

E - 20. Interview 46 (5: 21 - 25): When I tell people I work for a chemical plant, I get all sorts of weird looks. I think it would be better if I told them I was a garbage man. To say that you work in a chemical plant, the worst comes to their minds. I'm surprised at how many people really think that.

E - 21. INTERVIEW 16 (5: 9 - 14): (Did Bhophal and other incidents wake up the industry, the local community people, the regulators...?)I would say so, sure. Everytime there is an incident or something it brings awareness to everyone involved. It's a logical step.

E - 22. Interview 46 (5: 52 - 6: 6): About that time Hooker Chemical was constantly in the media. That whole residential area was discovered to be quite contaminated. From there, people started looking at the chemical plants in their own neighborhoods, but chemical plants have to be somewhere. I guess, then, from there they decided that if they are going to operate in this community, they're going to have to sell them on the idea that they could be a good neighbor. Thus, Responsible Care programs were originated.

E - 23. Interview 45 (2: 15 - 19): One (driver for behavior) is that the general public has become more aware whether it be the chemical industry or the entire industry which would include steel, pesticides and so on. People have become more educated. Information is more assessable to people.

E - 24. INTERVIEW 10 (4: 42 - 50): Now there's much more than that (members in the CCPA). We were very instrumental in getting that vision statement for the CCPA, the scope of its operations, and how it could influence the future and the environment and in fact were very influential in helping them work as a model of what a chemical company should look life. That is one of our biggest resources for environmental changes and issues. What is the CCPA going to do and what is their reaction, what's the upcoming legislation look like?

E - 25. Interview 46 (6: 46 - 49): If I see some headline in the media about a deadly chemical spill it catches my eye and I start reading it. Then I find out it's really nothing and that's the kind of ignorance the media sells to the public.

E - 26. Interview 46 (3: 20 - 26): Well, all you have to do is look in the media in the last ten years with discoveries of contaminated soils, water stream systems and in the end, chemical companies ended up with a bad reputation over the years. Not that they were all jumping in and polluting everything, but they were living with that reputation. So it seems like you need drastic measures to buy back a good reputation.

E - 27. INTERVIEW 10 (6: 12 - 30): (environmental behavior is a competitive edge?) Absolutely. And also a liability edge. If you look at drum disposal. In the US in 1956, we paid so many thousands of dollars for disposal of some drums at what they call a Class One disposal site. In 1992, someone decided to build a housing development there. There were 300 chemical companies that put drums in that disposal site. It now became a Superfund site. Of those 300 companies, four were still in business thirty years later. We paid to have our drums moved again and properly disposed of. The decision was made nine years ago to get out of the drum business because that is a tale that you can never get out of. No matter where you put those guys, someday somebody is going to come get you for them. So we've been spending, to date we've spent approximately 200 million dollars, in providing returnable stainless steel containers for chemical transport versus drums and we've eliminated twelve million drums a year out of our fleet. We were on Fortune 500 ten most improved environmental companies in 1993 because of the position that we've taken on that.

E- 28. INTERVIEW 10 (10: 15 - 22): (What drives government?) I think public opinion and I think Greenpeace. And I think concerned citizens and neighborhoods. I think a awareness, education from the public and I think that's good. If you look at the way any chemical company practiced manufacturing 30 years ago, it would scare you to death. It amazes us sometimes that our customers do business with some of our competitors who continue to do business that way. And we still have violations.

E - 29. Interview 46 (6: 20 - 29): I don't think the government ever backs off. They're there. It's just that the idea is that you don't have to worry about some bill being run in the legislature that's going to bring the chemical companies to their knees because it's an unreal expectation of emission controls or whatever. There are guidelines set up by the government. They do cover what type of emissions are acceptable, what your effluent can contain and they're getting tighter and tighter. So, by like 2000, they expect our emissions to be down a certain percentage.

E - 30. Interview 45 (4: 4 - 5): Your reportable quantities of your releases have gotten tighter and the field has gotten a lot more broader.

E - 31. INTERVIEW 16 (6: 4 - 5): (Regulation getting easier?) I wouldn't say easier. I doubt very much that it will get easier. I mean, that isn't what we're working towards, to make things easier.

E - 32. Interview 45 (4: 10 - 11): If you have a release, it has to be reported to federal and provincial authorities.

E - 33. INTERVIEW 10(3: 34 - 47): So when you start looking and anticipating the problems these plants are going to be faced with and now we started focusing on changes in the environment and environmental policy. What type of chemistries in the future will keep them out of heavy metal applications which will keep them burning cleaner on their new effluent discharge?

E - 34. Interview 45 (1: 34 -35): Process water used to go into a pond and we would just deep-well it or have it treated by a company.

E - 35. Interview 46 (1: 23 - 27): One of the first examples would be our waste water lagoons. Those are being decommissioned as we speak. We've got our own little treatment plant and we're properly disposing of waste water.

E- 36. INTERVIEW 10 (15: 7 - 18): We position ourselves globally in manufacturing and we operate in 137 countries. We don't have manufacturing in all of those countries, but logistically we position our plants all over the world to service those. We try to take those environmental issues into consideration when we buy them. We just recently closed several manufacturing plants because they were old and provided a lot of liability and we're going to go ahead and take the hit to clean those up today with today's standards versus keeping that plant open another ten years and trying to clean it up with standards that are going to be enforced in ten years.

E - 37. INTERVIEW 10 (15: 23 - 31): Not very many plant buyers are going to buy (a used plant because of) the liability with it. It becomes a real issue. ... So you end up holding it and cleaning them up unless somebody has a real strategic need for that plant and then you can sell the liability with it.

E - 38. INTERVIEW 10 (22: 15 - 23): The one that comes to mind is a chemical called carbon disulphide. Works great for ridding wax, candle wax. Carbon disulphide is very carcinogenic. Some of my competitors still provide it to operators out on the field to use. We've taken the position that we don't even manufacture the stuff anymore. Maybe we shouldn't be using that stuff. Because there are alternatives out there that are more expensive but aren't near the environmental risk.

E - 39. INTERVIEW 16 (14: 4 - 13): There are a lot of recycling type activities that we put into place. Like at this site and at Burlington. We clean all our sample jars, and they are all recycled, and all our paper now goes to recycling, and plastic and that kind of thing. And putting in waste reduction efforts and improving upon them. How can we minimize waste? And gong to Just in Time inventory, and they were developed so you're not left with a bunch of product that can't be sold. The chemical delivery system, our contract system that we put in place. And getting out of drums and going into stainless steel returnable containers, well that is still an ongoing process where we train our drivers of our trucks, we look at them as delivery specialists not as truck drivers, and they are quite knowledgeable about what is going on in the field.

E - 40. Interview 46 (2: 1 - 7): A lot of it is dealing with waste. We've changed over from selling a lot of drums to customers to a transport system that uses re-usable stainless steel tanks. Some of these products are designated for a certain product use so that they are really never cleaned out. They are inspected between uses to make sure that they aren't contaminated and one of our truck drivers will off load it on to their site.

E - 41. Interview 45 (2: 7 - 8): It costs the customer because they may not have gotten all of the product (with old flat bottomed tanks).

E - 42. Interview 45 (9: 4 - 5): They take a certain percentage and say this is what we are going to set aside. There is a budget.

E - 43. INTERVIEW 10 (8: 13 - 29): But if you take, and this is what I think comes from just good management perspective and vision. If you take the position that Firm E has on drum disposal and that's one that is very dear to my heart because my assignment previous to here was in Houston. We're spending 30 million dollars a month building stainless steel containers to get out of drums. Number one, there's not that many chemical companies that are committed to that. Number two, not many can afford it or that have Board of Directors that can see the vision that the company's going to. That's why I work here versus someone like some of the others. That's why we continue to have growth when right now it is pretty stagnant in our business. And we tend to hire people that are very aggressive and push the system. I push the system everyday myself, forcing my management to understand a different view.

E - 44. Interview 46 (2: 32 - 37): Well, we don't want to have to deal with waste ourselves, as a company. Not only us trying to dispose of the waste, which is a cost factor, customers don't want drums either. They don't want to deal with the waste when that drum is empty. This is one solution that works well for them as well as for ourselves.

E - 45. Interview 46 (8: 21 - 22): If they (some really small chemical firms) were complying to everything to the letter, they couldn't financially exist.

E - 46. Interview 46 (9: 4 - 10): I remember when I was first working in the industry and the pressure would come down from management to the point where we had to do certain things and I wondered why they didn't put in a new design or process. Eventually theat plant closed down because they couldn't meet those expectations. It was not economically feasible to turn an old cotton plant into a chemical plant.

E - 47. INTERVIEW 16 (11: 38 - 12: 2): For me, I know that as a company we really stand by these Principles, ok, and then we work smart at it. We develop systems that are good, and that are run economically at a plus. And at the same time we still meet these Principles and we're looking after our stakeholders. Like, how much more does it cost to operate in this fashion?

E - 48. INTERVIEW 16 (13: 28 - 32): I would say a learning process of improvements. One of the reasons I stayed with a company like this one is because of how pro-active they are with these types of things. Always improving not only their activities outside the plant, but also with the people inside the plant. And I would say that they've changed. It's always changing. And we're improving on them.

E - 49. Interview 45 (3: 1 - 5): I think the industry is trying its best, but it's not working as fast as the environmentalists would like things to be done. Industry is trying, but it's a very expensive change. They are improving, especially the large ones. Firm E is very stringent.

E - 50. INTERVIEW 10 (5: 6 - 14): Now, I'm looking at myself as a competitor in the world market. What can I provide for my customers that my competitor cannot? Can I get money for that position? Can I create value and ultimately equity to my stockholders? So, not only do I position myself on my ability, I make my stockholders wealthy, become an industry standard, and I might be able to be that one final distinguishing factor for my competitor on Celanese (for example) where they've tried two or three (other) water treatment chemical companies.

E - 51. INTERVIEW 10 (19: 27 - 39): Our safety sheet is eight pages front and back. Our competitors sometimes are one page front. It still meets the minimum requirement of the law. So we need a materials safety daily sheet. Here it is. Now you won't understand what it means, if you want we have a toxicologist on call all the time with an 800 number for any kind of chemical spill or chemical exposure. If you want to know what's actually in those drums of chemical that you buy other than it's a trade secret only to be revealed through, you know. I'm amazed sometimes what the government has allowed my competitors to do. We've taken the position that this is your information. Making it work is still where we're going to make our money.

E - 52. INTERVIEW 10 (6: 43 - 51): So from a liability standpoint, from a positioning standpoint, from a stockholder equity standpoint, I'm trying to compete on the stock market for someone to invest in my company. Why is an investor, an informed investor, when I buy this stock with that exposure from an environmental viewpoint versus me wanting the chemical stock businesss from a company that takes a whole different position. So again, it's very competitive out there. It's all based on providing a return for your stockholders.

E - 53. INTERVIEW 10 (12: 8 - 14): And you try to do damage control if somebody has an unfortunate incident. And you try to push yourself away from the industry a bit and say but we're different. Here's what we're doing to make ourselves different. So you can try and turn one of those very negative things into something positive and why that won't happen to you.

E - 54. INTERVIEW 10 (12: 19 - 26): (Question about industry versus firm in public's eye) Edmonton is kind of an industrial area for Alberta. I was in Houston on my last assignment and everyday there's a major chemical explosion, or spill. You're always finding yourself in a position to defend what you are doing versus what these other operators are doing. In todays global competitive environment, unfortunately there is going to be some breaches.

E - 55. INTERVIEW 10 (11: 14 - 22): (In response to comment that all firms are seen as the same by the public.) Absolutely. And that is why to have to continuously strive to in any industry. Any industry is faced with that. You have to try and do the best you can and distinguish yourself most importantly with your customers because those are the ones that are going to keep you profitable and going to keep you in business. We do a lot of presentations for large chunks of business. We spend a lot of time positioning ourselves with the customer on this is the supplier that you want to use and here's why.

E - 56. INTERVIEW 10 (9: 40 -46): We take back all of our drums. We take them to qualified drum recyclers. These drum recyclers rinse thm three times and sell them to our competitors. We don't use any used drums. Most of my competitors do. We've done liability studies on used drums and the problems that you have with them. So we don't like used drums and most of my competitors do. It's a cost saving (for them).

E - 57. INTERVIEW 10 (9: 17 - 34): What you have to balance is sometimes the customers don't know what's best for them. My customers in the oil industry right now don't think drum disposal is important. They still want to buy drums and they won't pay a penny more than they have to. So we have to weigh getting my customer out of drums versus what he's wiling to pay for that and how much of my stockholders equity I'm willing to give up to absorb some of that cost until my customers are willing to pay for it ... So sometimes you have to kind of force the customer to look at that vision and say: "How much did that liability cost you?"

E - 58. INTERVIEW 10 (3: 34 - 47): When you say specialty, you find the chemical per pound much more expensive than the commodity size. You've got four to seven engineers in there on a full time basis. Somebody's got to pay for that kind of service besides all the equipment support, research support. We spend sixty million dollars a year on research. More than twice than anyone else in the business. So when you start looking and anticipating the problems these plants are going to be faced with and now we started focusing on changes in the environment and environmental policy. What type of chemistries in the future will keep them (other chemical plants) out of heavy metal applications which will keep them burning cleaner on their new effluent discharge?

E - 59. INTERVIEW 10 (12: 45 - 49): And what actually happens, what we have been able to do, is to deliver on both. Be the industry leader on environment and always return 10% to the stock-holders after taxes. Nobody in our business has been able to do that. We've done that for 23 or 24 years.

E - 60. INTERVIEW 16 (16: 33 - 36): (Do firms really do more than they have to? How to confirm this?) Well, they may wish not to do certain activities anymore. Well, they may decide that if they can't do that activity responsibly then they won't do it at all. Like the closed loop system at Dow. They are never going to get payback on that, but they are doing it anyway, even if it doesn't pay. And that's the proof.

E - 61. Interview 16 (9: 27 - 34): I agree there are tradeoffs. If you look at it from a preventative maintenance sort of aspect, the community and the government are all more aware of the impact of say a spill, ok, so we go out and spend a whole bunch of money on good equipment, distribution type of containers and trucks, returnable containers and all that. and you've spent all the money. And instead of doing that a company decides that we're not going to do that, we're not going to deal with that, and that sort of thing, and then they have a big spill, and then they spend millions of dollars cleaning it up. So. Did you lose anything by spending that money for preventative sort of maintenance?

E - 62. INTERVIEW 10 (3: 48 - 51): Fines per day for effluent discharge in the US exceed $25,000 per day. It doesn't take long to pay little extra in some chemical and have some expertise with a company to keep you out of those kinds of problems.

E - 63. INTERVIEW 10 (14: 23 - 43): (In response to question about why not buy cheaper product from Brazil?) In North America, it may be because of those liability and environmental reasons. That's where your market is for this plant. That may be all you need. North America has worked out these logistics. Europe has worked out some of those logistics on a world market. If I can't deliver my chlorine from Brazil to Japan every month on time, so that I have Just in Time inventory, maybe I need to pay a penny more to Dow here, or maybe I provide 80% of my business to Brazil, but I pay a little bit more and provide 20% of my business to Dow in Fort Saskatchewan, and I pay a little bit more.

E - 64. Interview 45 (1: 45 - 51): We have a state of the art transport system. The tanks are all cone shaped on the bottom so that you get all of the chemical. We don';t have any coming back that we have to dispose of because disposal is costly if it has to go to Swan Hills or where ever. The pumps we have completely suck the lines dry so that there's absolutely no waste and all you do is wash the tanks out when you come back.

E - 65. INTERVIEW 10 (9: 40 -46): We take back all of our drums. We take them to qualified drum recyclers. These drum recyclers rinse thm three times and sell them to our competitors. We don't use any used drums. Most of my competitors do. We've done liability studies on used drums and the problems that you have with them. So we don't like used drums and most of my competitors do. It's a cost saving (for them).

E - 66. Interview 46 (4: 51 - 5: 2): It would have been tough (to make money in the good-old-days before careful controls were in place). It would have been hard to sell that to a customer with all that extra cost. Like even with just research and development, they start looking at what are we doing for emissions systems and on and on. It's no longer "let's try this and see what happens", and then changing it later.

E - 67. INTERVIEW 10 (15: 7 - 18): We position ourselves globally in manufacturing and we operate in 137 countries. We don't have manufacturing in all of those countries, but logistically we position our plants all over the world to service those. We try to take those environmental issues into consideration when we buy them. We just recently closed several manufacturing plants because they were old and provided a lot of liability and we're going to go ahead and take the hit to clean those up today with today's standards versus keeping that plant open another ten years and trying to clean it up with standards that are going to be enforced in ten years.

E - 68. Interview 46 (3: 29 - 35): But basically, it boils down to a reputation or very much a self interest. If down the road, twenty five years later it gets discovered that you've been contaminating soil or water, to me, that's the pay-off for them (Firm B and the closed loop system) twenty five years later for the twenty five million they spent two or three years ago. They're not going to be liable or responsible for contaminated soils or whatever.

E - 69. Interview 45 (5: 8 - 11): At one point, you'd never have known there was anything in that sand (city sandbox from contaminated C1 site) because it's the technology that's advanced that's caught up with them. It doesn't matter how many years away it will be, it will always come back to the root cause.

E - 70. Interview 45 (4: 29 - 30): (Long term planning?) I know it does with FIRM E. We've got stuff going for twenty years down the road.

E - 71. Interview 45 (4: 49 - 50): (How come, going past regulation?) How come? It's because you're always going to be accountable.

E - 72. Interview 46 (7: 30 - 35): They might have used the term cradle to the grave from the process of development to how it's made and then even how the customers are going to dispose of it. That's all a factor with Firm E. They're trying to sell a product to customers that suits their need, not just to meet more tonnage.

E - 73. Interview 46 (8: 1 - 10): I know that Firm E tries to be careful in who they sell to. I honestly don't know how effective it is. I can't say where it's been caught in every example because there's one place that I did work for about ten months. I was totally aghast. They were right in the middle of North York and they had water going I don't know where. They didn't really have much control. We'd clean out the blender and then it would be down the drain and it wasn't treated or anything. I was really surprised to see who was supplying them at this time. It was just about six years ago.

E - 74. Interview 46 (2: 46 - 50): The customers are paying an extra premium for that service as well, which shows you their dedication to reducing waste. They think that it's worth a little bit of extra premium to have their chemicals delivered that way.

E - 75. INTERVIEW 10 (17: 34 - 47): ... and it is sad and very frustrating to go out there and they're half the price that you are and the customer has made the decision to ignore that or not investigate how some of that chemical makes it to his site. And that's very frustrating in our business. You know, when we're struggling for market share and profitability and those things, sometimes you just want to shake those customers and say "Can't you see this?" But he goes through the same buying decision. He's fighting for his welfare as well. He can't see the value in that. He sees the local manufacture supporting the local economy and the fact that maybe his reactor rinse goes into the floor drain into the municipal plant or maybe just goes into the back yard, and it's only greener back there because of it.

E- 76. INTERVIEW 10 (8: 29 - 40): ... and we have a formal program on that, that asks the customer feedback. And in that customer feedback section, all the time, is where are you at in the environment, where are you at on drum disposal, where are you at on effluent, what is important to you? What issues in the future are going to be important to you? We record these things all the time and give that feedback to the salesmen, district managers so that we can go back in there and probe. We then give that feedback to the policy makers at our firm to continue to position ourselves. Very important. Not very many customers have a formal customer feedback system from their suppliers.

E - 77. INTERVIEW 10 (9: 46 - 10: 2): But it's a position that we've taken on that. But there is qualified drum recyclers to do that and they do a very good job. You know there's one in Regina that we use and he does a very, very good job and the reason we use him is we audit him three times a year so we can track what he does with those drums and track what he does with the effluent rinse from those drums to make sure he disposes of it environmentally safely. And then, where does that drum do? And damn sure that it doesn't have our name on it when it leaves there.

E - 78. INTERVIEW 10 (10: 2 - 7): Now with the returnable container program that we've taken on, we clean all those ourselves. So we know exactly where the effluent goes in that rinse. We don't think there's anybody more qualified than us. So we do all of our own returnable container cleaning and all of our own manufacturing plants for that reason.

E - 79. Interview 46 (8: 35 - 39): Even this chemical industry may not be directly linked to the consumer, but still sooner or later it becomes consumer goods. In the end the consumer pays for it. If you want a cleaner environment, cleaner air to breathe, then you're the one who is going to pay.

E - 80. Interview 46 (8: 47 - 49): The costs associated with a cleaner environment have to come out somewhere. Either they are a hidden cost in the price or something like that.

E - 81. INTERVIEW 10 (12: 26 - 35): All you can do is continue to sell those customers that what you are doing is right and it's worth more so that you can keep that vision statement intact. We will not waiver from the position that management takes on the environment. We have committed too much money into it. We've committed too many stockholders to it. And we've committed our customers to it. Most of our customers are doing business with us because of the position we've taken on it (the environment). We won't breach that. and it costs us a lot of money to do that.

E - 82. Interview 45 (7: 50 - 53): I guess it's up to the corporations that buy the chemicals to make sure that where they buy their chemicals from stick to the safety regulations and environmental regulations.

E - 83. Interview 46 (7: 47 - 50): This is partly too that you hope that those you are selling to aren't going to look at another supplier because they have a lower price. Hopefully they'll look at what kind of operation you have.

E - 84. INTERVIEW 16 (3: 38 - 4: 4): I would say that the CCPA (members) are the same. You're writing (your missions statements) to the same principles into the codes and practices. And you operate under those. That would meet or exceed all government regulations. Like operating codes and practices are not the same as the law. Or rules. They may be written around the law and a lot of that, but they may add a lot of other things into that, like going out and meeting with people in the community, as I meet with you today to help with this, to give you a better understanding. There isn't a law that says I have to do this, but I'm part of Responsible Care so I will do that. And explain to you the types of activities and things that we are doing.

E - 85. Interview 46 (5: 39 - 46): I know that damage caused by chemical plants is irreversible in some places and they'll never be able to restore some of the places destroyed. But they do, nowadays, take into consideration the environment. I came into the industry at the turning point where there was a high regard for image as well as what they were doing to the environment. I can't imagine what it must have been like beforehand, but I've heard stories.

E - 86. INTERVIEW 10 (10: 15 - 22): (What drives government?) I think public opinion and I think Greenpeace. And I think concerned citizens and neighborhoods. I think a awareness, education from the public and I think that's good. If you look at the way any chemical company practiced manufacturing 30 years ago, it would scare you to death. It amazes us sometimes that our customers do business with some of our competitors who continue to do business that way. And we still have violations.

E - 87. INTERVIEW 16: (5: 19 - 24): guess, if there is a chemical spill, then it is a reflection on the Chemical Industry as a whole. And that's why it is better to have people all working for the same objectives, to be more responsible, to look after issues pertaining to emergency response type things. Can you respond? Do you have procedures in place? That type of thing. All those things. So it does make sense that a spill from any company would reflect on the Industry.

E - 88. INTERVIEW 10 (14: 51 - 54): Well I think it's going to be a balancing act and I think that certainly some of the repercussions of NAFTA is that some of the North American plants north of the border are actually more competitive than they thought they were.

E - 89. INTERVIEW 10 (18: 14 - 23): They're (Dow and Celanese) big Manufacturers. We don't do any manufacturing per se. We have a plant here and do a little coal blending. There's not much that could go on here that could effect the community, in the sales sampling where I'm at. Your audience over there would be more the manufacturing, I'm assuming. I'm more from the sales standpoint. I deal with customers all of the time. If you talked to our equivalent in Burlington all he talks about is community,community, community.

E- 90. INTERVIEW 16 (5: 30 - 34): Yeah they do (non CCPA member firms affecting reputation). I expect that the CCPA is making great strides with them to try to bring them into the organization. Or work with the Responsible Care codes and practices. But that's not to say, just because a firm is small, that they do not have quite acceptable type procedures in how they handle ... so you can't look at it as a big firm / small firm categorization.

E - 91. INTERVIEW 10 (17: 19 - 27): (the survival of older plants?)
They've got deep pockets (Celanese), and they'll make that forty year old plant viable. We have forty year old plants, we have sixty year old plants and we spend millions of dollars every year upgrading and anticipating environmental changes. Celanese is the same way. They've positioned themselves. Dow's the same way. Both these companies have very strong environmental opinions and have the pockets and stockholders ability and I guess the vigor to stay with them to position themselves for that...

E- 92. INTERVIEW 10 (10: 48 - 11: 7): We sponsor all kinds of programs for the community and our manufacturing plants to come in and take a look: Greenpeace Day, Save a Tree Day, all those kinds of programs. And I think we have loaded access to the public opinion until you have a problem. The example is when this woman was killed in Millwoods. Nobody was really concerned about teenagers breaking into homes with a knife until that woman was killed. The next day on the capital building out there, how many thousands of people showed up? You have a chemical spill over here at Celanese and those fish float in the Saskatchewan river, you see how many people are at that gate in the morning. So their efforts may go unrewarded. They try to do everything right, until they have a problem. And then public opinion can be terrible.

E - 93. INTERVIEW 16 (5: 30 - 34): Yeah they do (non CCPA member firms affecting reputation). I expect that the CCPA is making great strides with them to try to bring them into the organization. Or work with the Responsible Care codes and practices. But that's not to say, just because a firm is small, that they do not have quite acceptable type procedures in how they handle ... so you can't look at it as a big firm / small firm categorization.

E - 94. Interview 46 (6: 12 - 15): It goes full circle right back to the community. We want to be in your community. We want to run our facility here, but here's all the things that we're going to have to do to do that.

E - 95. INTERVIEW 16 (15: 26 - 27): (How to change public perception) By doing what we're doing. It has to be behavior and visible behavior. And to keep proving ourselves.

E - 96. Interview 45 (7: 1 - 13): We've had one open house here when we decided to quit the manufacturing and just do warehousing. We have the fire department walk through especially when they have new guys on staff. They have a plan of the place. We try to make the fire department more aware of what we have on site and through the fire department we have some like the CARE program. We're not actually part of the CARE program with the SIA. As far as the general public, it's different because we're the warehouse, we don't make it. A lot of people are concerned about emissions off the site. People see other's flares and they think it's pollution and it's just steam. Try to explain that to people, but they're just terrified of chemicals.

E- 97. INTERVIEW 16: (5: 19 - 24): guess, if there is a chemical spill, then it is a reflection on the Chemical Industry as a whole. And that's why it is better to have people all working for the same objectives, to be more responsible, to look after issues pertaining to emergency response type things. Can you respond? Do you have procedures in place? That type of thing. All those things. So it does make sense that a spill from any company would reflect on the Industry.

E - 98. INTERVIEW 16 (7: 26 - 29): If there are no incidents there is no concern. Yeah, yet the firms are concerned anyway, which is probably a better way to have it. If we're in control of what we're doing then there is less possibility of incidents happening which means there is less concern for the public.

E - 99. INTERVIEW 16 (9: 4 - 8): I think it's learning, it's being more understanding of, not only understanding of our own business and what we're doing, but our stakeholders such as the community and the environment, and it's a learning process, and as you say, as people learn more and become more educated about it, they become more concerned. So we've expanded our stakeholders.

E - 100. INTERVIEW 16 (7: 8 - 15): (In response to a question about public concern) In one area (of the country) there may be an instance that may bring up regulation because some individuals are concerned with a certain regulation. And then you can go to another area of the country where those people in that area may not share that same concern. They may have a different concern. ... they bring in these regulations but the public aren't concerned , you know, why did it come about? But the regulations are there to protect the environment and to protect the people. The behavior of the firm is there to protect the environment and the people.

E - 101. Interview 45 (6: 18 - 27): The MSDS are on hard copy on the computer. When we send a shipment of a new product, it goes with it. That's the same when we receive it. We will not receive a new product on site unless we have a MSDS that comes prior through fax mail. That is law too, by the way. The funny thing is that a lot of the stuff from your kitchen sink is a lot more dangerous than what we've got in the lab here. People are handling that stuff with no gloves on. Oven cleaner is a good example because it's highly corrosive. The fumes can kill you too.

E - 102. Interview 45 (6: 33 - 35): They're (the public) more aware of chemical companies and what they do, but as far as household products, they don't really care about it.

E - 103. Interview 46 (4: 14 - 27): Public's perception of chemical companies has also been used as a leverage as well. I can remember an alderman back in Hamilton that continuously jumped up and down and cried and it was just a small complaint and she was always headlining. She probably even took a bow when this company decided that it was no longer economical to run that facility. The plant had been there since the early 1900s and this was getting into the 80s, so they decided to move some of those processes to where it was more economical to run them. Also, I've got to admit, something like the way that they dealt with their waste water, they never contaminated anything, but there were no safeguards either. If they ever had a major spill on the site, it went straight to the sewer stream. There was no way of containing a large spill.

E - 104. Interview 45 (6: 40 - 49): I think they're more scared because of some of the bad incidents like Bhophal and even burning tires and PCBs. The media just blows it way out of whack, especially with chemicals. You hear about that incident in Japan where they had arsenals of insecticide and pesticides and they were going to create germ warfare. When you say household cleaners it's really a totally different reaction than chemicals. We use bleach most of the time to deactivate, which is a lot stronger than some of the stuff we have here. Something like Liquid Plumber is highly corrosive.

E - 105. Interview 45 (5: 36 - 40): You will find too that the government over-reacts. They immediately blow it way out of proportion. We've been involved with this too, and the media blew it way out of proportion back in 1987. It was on Highway 16 and we had to repave part of the highway.

E - 106. Interview 45 (8: 4 - 5): I think it's also up to the governments to legislate it (environmental standards of firms selling products into Canada).

E - 107. INTERVIEW 10 (19: 27 - 39): Our safety sheet is eight pages front and back. Our competitors sometimes are one page front. It still meets the minimum requirement of the law. So we need a materials safety daily sheet. Here it is. Now you won't understand what it means, if you want we have a toxicologist on call all the time with an 800 number for any kind of chemical spill or chemical exposure. If you want to know what's actually in those drums of chemical that you buy other than it's a trade secret only to be revealed through, you know. I'm amazed sometimes what the government has allowed my competitors to do. We've taken the position that this is your information. Making it work is still where we're going to make our money.

E - 108. INTERVIEW 10 (21: 20 - 28): I think the other view that I have is that I wish sometimes that the government people were some of the better ones in the industry and they tend not to be. ... I struggle with that myself. How do you make the informed government guys affordable. You struggle with that.

E - 109. INTERVIEW 16 (6: 30 -32): Well sure, if you're looking at the Province of Alberta and the Province of Ontario, and they look at each other in terms of what they do with regulations, and I imagine they piggy-back on one another's ideas.

E - 110. INTERVIEW 16 (3: 25 - 30): (Why go beyond regulation?) I would say because we thought that there was a need. That we should be monitoring our own activities. That the government shouldn't have to tell us that, you know, here are the rules and regulations of a certain province, and they maybe very specific at times, and they may be very broad, but we should be doing that ourselves. We shouldn't have to be told by government regulators what to do. We should be able to know what we should do, this is what we feel we need to do.

E - 111. INTERVIEW 16 (6: 10 - 13): And the other thing, you mentioned that the CCPA works with the government. If anything, just to make it easier to make sure that the regulations that are brought in are the correct regulations, that's where I can see things getting easier by working with them.

E - 112. INTERVIEW 16 (14: 27 - 31): I would say it's driven by the industry. As I said earlier, the events to get the industry to say, hey, we have to implement something was the first step, but now I would say it's driven by the industry. Probably took some events and some things to get it started, but now the industry has taken a hold of it, and championed it, and they will continue to go with it.

E - 113. INTERVIEW 16 (6: 4 - 5): (Regulation getting easier?) I wouldn't say easier. I doubt very much that it will get easier. I mean, that isn't what we're working towards, to make things easier.

E - 114. Interview 46 (6: 33 - 35): I would think so (emissions eventually down to zero). There's got to be a target like that somewhere, but they know that they cannot expect it overnight.

E - 115. Interview 46 (1: 27 - 29): It's just that what was acceptable in industry in the past is no longer really acceptable.

E - 116. Interview 45 (3: 43 - 47): I think it all goes hand in hand. You can go outside the regulations and there's a chance that you could be fined or shut down.

Hopefully people like the CEO's of large companies have a conscience and don't want to pollute for their children and grandchildren.

E - 117. INTERVIEW 16 (1: 29 - 30): We have a license that we follow and there are a lot of guidelines that are associated with that that we must comply with, in order to operate.

E - 118. INTERVIEW 10 (5: 48 -54): (re Global standards with ISO 9000) You can still have inferior facilities, but you just manufacture them the same way every time. That's the downfall. All it does is say that you're going to follow a set of standards. It doesn't say that those standards are right. It doesn't say that those standards are safe. It just says that you're going to follow those standards all the time.

E - 119. Interview 45 (4: 35 - 37): That's why I feel comfortable working for FIRM E. They're always above regulation. They're a very good company environmentally. They always shoot way above the limits.

E - 120. INTERVIEW 16 (3: 16 - 18): This would probably go above and beyond (government regulation). They would have certain regulations by the government, that you will operate in a certain manner and meet your codes. But this (guidebook) is more than that. This is going extra distance in how you operate.

E - 121. INTERVIEW 16 (6: 10 - 15): (Regulation maybe irrelevant anyway, because firm behavior is beyond regulation?) But as far as the regulations themselves getting easier, or how stringent they are, then no, I wouldn't say that they would. Even if they would, we would still operate under these principles.

E - 122. INTERVIEW 16 (1: 34 - 37): The CCPA, they have guiding principles, sort of a living type document, something that we practice. People here and in Burlington where our head office is. And we recently went to sort of an audit process by the CCPA and other member companies to see how well we comply with that, and we did very well.

E - 123. INTERVIEW 16 (6: 22 - 24): Well yeah, you always respect the regulations, and you want to meet or exceed the regulations. It's what you want to do. So any new ones that come in you want to meet that and probably exceed that.

E - 124. INTERVIEW 10 (7: 31 - 42): (re monitoring trends) The CCPA is the first one. I called the environmental group this morning and looked at my notes and I've got to position myself here this morning. The CCPA is the first one that our environmental group in Burlington says that they used as a contact. Helps them with future regulations, with discussions of where the industry's at today and where they're going. Agri Canada, Environment Canada, Transport Canada, are the other three formal political and business government groups that we actively participate with in the committees and subcommittees for legislation. We have members on those committees to make sure that we are informed.

E - 125. INTERVIEW 10 (7: 42 - 50) We also subscribe to a consulting group called Ecolog which is a monthly magazine that comes out with environmental legislative changes and perspectives on what the future is going to look like. In addition to that, there's also a consulting group that we used called, it's a CD ROM program that comes out quarterly, through the Canadian Occupational Health Group and we subscribe to that and on that we get quarterly updates of where the government is going to take a position on some of these things.

E - 126. INTERVIEW 10 (13: 18 - 45): Well, I don't think it is totally determined by the ten percent (the return for stockholders required prior to any environmental behavior). How much we do is a management decision and you weigh what the consultants tell you, what lobbyists we hire. Lobbyists all the time affect that political group and the lobbyist that we've had that have worked for us for years help us with those long term projections of what the change is in the environment is going to do based on the political scheme. You know, if this guy gets elected it's going to have a huge impact on our business versus this guy who is more conservative, he may not have such an effect. So we always try to make sure that you understand the political scheme. Certainly, again, in Canada and the US, what Chretien and Clinton's view on the environment is has a huge impact on us. If they pass and force legislation that is going to have a detrimental effect on how we manufacture or package or label, you better be aware of that. Obviously, lobbyists are one of the best groups to help to keep you informed on that and try and keep those political people informed on what the impact of those decisions are on the industry.

E - 127. Interview 46 (7: 28 - 30): Yes (better technical skills and better measurement) partly driven by government and partly by self-regulation. Firm E has pretty high expectations about how their chemicals are handled.

E - 128. Interview 46 (6: 6 - 12): I think another part of it too is looking at what government will regulate and companies hate being told by big brother what to do. They want to control and regulate themselves and create policies that they can live with financially whereas if they let the government do it, they might end up with some very unreal expectations. Self- policing has got its advantages.

E - 129. INTERVIEW 16 (15: 37 - 16: 2): If you're talking over your fence with your neighbor and they say "you're working for a chemical firm and they're big polluters of the environment", and you hope that your employee that has worked for you has a good understanding, and we do that here with training about Responsible Care and saying that this is how we all act here, we are all responsible for the environment if we work here. And he can turn around to his neighbor and say "no way, that's not how it is anymore. We do things differently."

E - 130. Interview 45 (8: 45 - 49): It could be anything. You just don't know. As far as the chemical industry is concerned, I think they will find ways of dealing with their waste better. They'll be able to recycle it and use it better. They'll have less waste because they'll find better ways to reuse it.

E - 131. INTERVIEW 16 (7: 13 - 15): But they (the regulations) are there to protect the environment and to protect the people. The behavior of the firm is there to protect the environment and the people.

E - 132. INTERVIEW 16 (14: 4 - 13): There are a lot of recycling type activities that we put into place. Like at this site and at Burlington. We clean all our sample jars, and they are all recycled, and all our paper now goes to recycling, and plastic and that kind of thing. And putting in waste reduction efforts and improving upon them. How can we minimize waste? And gong to Just in Time inventory, and they were developed so you're not left with a bunch of product that can't be sold. The chemical delivery system, our contract system that we put in place. And getting out of drums and going into stainless steel returnable containers, well that is still an ongoing process where we train our drivers of our trucks, we look at them as delivery specialists not as truck drivers, and they are quite knowledgeable about what is going on in the field.

E - 133INTERVIEW 16 (16:10 - 12): But I know that I don't go around and it is only myself that knows about this (mission statement), and I teach the employees and say this is how I want to operate, and this is how I want you to operate. And I want them to want to operate that way too.

E - 134. Interview 45 (7: 25 - 33): I think in most plants you have to have electrical permits and follow the fire codes and everything else. any kind of electrical work that you do has to be logged and they check on it. It's the same with the fire department. They take a walk though here once a year. You have to be trained in Transportation of Dangerous Goods before you can even work here. Chris and I hare both trained in fire fighting. They train us really well and that's the way it should be.

E - 135. Interview 45 (1: 22 -24): (Changes over last eight years?) Oh yes. The way we handle our products, the way we deal with our waste is different. We try to recycle whenever we can. We treat all our own water.

E - 136. Interview 45 (1: 39 - 41): We recycle all our paper, cardboard, glass and steel. We don't really recycle our products because they have chemicals in them.

E - 137. Interview 45 (6: 5 - 14): In the last four or five years computers have really come of age and information has been a lot more assessable. Material Safety Data Sheets are more assessable now too. MSDS carry all the information you need to know. It tells you how to clean it up, where it should go, how to dispose of it, if it's regulated, what goes into it, boiling points, what's the basic ingredients are. It tells you everything you need to know. You have to have that for every product that you have on site.

E - 138. INTERVIEW 10 (19: 27 - 39): Our safety sheet is eight pages front and back. Our competitors sometimes are one page front. It still meets the minimum requirement of the law. So we need a materials safety daily sheet. Here it is. Now you won't understand what it means, if you want we have a toxicologist on call all the time with an 800 number for any kind of chemical spill or chemical exposure. If you want to know what's actually in those drums of chemical that you buy other than it's a trade secret only to be revealed through, you know. I'm amazed sometimes what the government has allowed my competitors to do. We've taken the position that this is your information. Making it work is still where we're going to make our money.

E - 139. Interview 45 (2: 19 - 25): We've also realized that we have to be very careful with chemicals and the products that we're dealing with. So, there's more testing of what goes into it and what we put into our landfills. Waste that doesn't actually degrade and they're digging it up twenty or thirty years later and it's not even more decomposed. That's one of the reasons we use reusable tanks instead of drums.

E - 140. INTERVIEW 16 (10: 35 - 38): I know that getting out of the drums was not looked at (environmentally) incidentally. That (environmental impact) was looked at first. There was a very large investment put into doing that, so, to look that far down the road as an economic plus, that was an environmental decision that was made to get out of that.

E - 141. Interview 46 (3: 26 - 29): I hope it doesn't take away from the people running these companies like they don't care about the environment. We all want to plant a garden and breathe the air.

E - 142. INTERVIEW 16 (15: 37 - 16: 2): If you're talking over your fence with your neighbor and they say "you're working for a chemical firm and they're big polluters of the environment", and you hope that your employee that has worked for you has a good understanding, and we do that here with training about Responsible Care and saying that this is how we all act here, we are all responsible for the environment if we work here. And he can turn around to his neighbor and say "no way, that's not how it is anymore. We do things differently."

E - 143. Interview 45 (3: 51 - 53): (personal values come into this?) I would think so. I know they do with me. I can go to bed at night because I know I'm not polluting. I haven't done anything illegal and I'm not polluting the air.

E - 144. Interview 45 (8: 19 - 28): You shake your head sometimes and wonder why people can't do the right thing. (They say) it costs too much and it's not worth their while. Cost shouldn't be a factor. What's a dollar going to do if people are dead. ...I think it's true of all the Firm E people. Most of them have families.

E - 145. INTERVIEW 16 (2: 20 - 33): These are the Codes of Practice, associated with Responsible Care. ... This book is written by Firm E, but it's written with respect to the CCPA Codes of Practice. And then I'll give you a general (overview) on community awareness and Emergency Response. Those types of things. Transportation code of practice. ... This one here was updated in ... this one is about two years old, 1991. When the first book came out it must have 1986 1987. When we started implementing these types of things.

E - 146. INTERVIEW 16 (15: 37 - 16: 2): If you're talking over your fence with your neighbor and they say "you're working for a chemical firm and they're big polluters of the environment", and you hope that your employee that has worked for you has a good understanding, and we do that here with training about Responsible Care and saying that this is how we all act here, we are all responsible for the environment if we work here. And he can turn around to his neighbor and say "no way, that's not how it is anymore. We do things differently."

E - 147. INTERVIEW 16 (4: 9 - 11): It wasn't put together because of any fear of punitive regulation, it was put together because it was the right thing to do. And that's the reason for it (pause).

E - 148. INTERVIEW 16 (14: 36 - 38): Responsible Care is a living document. That is you just don't say "I'll do the minimum and that's it". If it works then it's obsolete. You have to continually look at it, and upgrade it, and improve it.

E - 149. INTERVIEW 10 (5: 6 - 14): Now, I'm looking at myself as a competitor in the world market. What can I provide for my customers that my competitor cannot? Can I get money for that position? Can I create value and ultimately equity to my stockholders? So, not only do I position myself on my ability, I make my stockholders wealthy, become an industry standard, and I might be able to be that one final distinguishing factor for my competitor on Celanese (for example) where they've tried two or three (other) water treatment chemical companies.

E - 150. INTERVIEW 16 (11: 14 - 26): Look at it this way. If you want to run a successful operation, and you're in it for the long term, manufacturing of chemicals, and you want to insure that what you do is right. We're going to operate under these guiding principles in the community so that we take a cradle to grave attitude. All of our chemicals here. How can we do that and at the same time make it economically feasible to survive. and that may take a lot of thinking, ingenious thinking, and the types of programs that we can run, and that, and still be able to survive as a business. We can do those types of things. There is a trade-off of the two. These trade-offs are worth it.

E - 151. INTERVIEW 16 (8: 19 - 26): I don't know. I personally like and believe in these types of principles, and I don't think that you should act irresponsibly when you're dealing with these types of chemicals. With the environment. That you can go out there and not dispose of chemicals responsibly. Those kinds of things. Those are just my personal feelings. And you learn from your kids too, you're going to throw something away and your son says "Oh no, that has to be recycled." So, you know, I have a wife and son, and I want the environment to be good for when he grows up also.

E - 152. INTERVIEW 16 (4: 25 - 32): What are the drivers? My personal feeling is if you're manufacturing chemicals and distributing them, then as a company, or as an individual person who is working here, it is sort of their right and obligation to go out and make sure that these things are handled and delivered safely. and I don't base it on myself as a fear of the public or the media, or that. To me, it is the way that it should be done. Those are my feelings, that if I'm going to operate within this facility, that those are the kinds of things that I want to do. The responsible type things. Responsible to myself, and my family, and my employees. That's why I do it, and that's why I want to do it.

E - 153. INTERVIEW 16 (8: 4 - 6): My own personal feelings. I would say we've touched on all the stakeholders there, but it is my own personal feelings toward Responsible Care that drives me toward implementing it.

E - 154. INTERVIEW 10 (10: 22 - 27): And we still have our problems. But I like working here, as a young yuppie who has a family, who has children, who wants to position the environment for my children. I've taken the choice to work for a company that is going to do something about that today.

E - 155. INTERVIEW 16 (10: 12 -14): You need to educate and explain. The reason we operate that way is because it's irresponsible if we operate differently. They (the irresponsible firm) may be fourteen percent (return on investment) this year and minus two hundred percent next year

E - 156. INTERVIEW 16 (10: 19 - 21): Yeah, we're looking at the long view when we invest in those types of things. In the environment and those types of things.

E - 157. Interview 46 (1: 27 - 29): It's just that what was acceptable in industry in the past is no longer really acceptable.

E - 158. Interview 46 (3: 46 - 4: 6): We've all seen experiences like that (contamination of soils that no-one even suspected). Where I lived, there was an individual who was restoring PCBs which eventually leaked and ran into the soil and contaminated that town's drinking well. They ended up going back to a smaller original well that wasn't contaminated that couldn't keep up so that they had to run a pipeline from Lake Ontario to this town so that they could get water. There was another case in Mississaga in the early 1900s where there was a company that dealt with metals and leads. After a while, it was reclassified and zoned as residential and people were getting sick and they discovered all these metal contaminations. So, it can get you a century later. What we're doing today is hopefully not going to catch up to us 25 years later.

E - 159. INTERVIEW 16 (2: 38 - 3: 7): Lots of things that occurred in the industry, the Mississauga incident when they got the chlorine gas going, there's the incident in Bhophal with the release of chemicals, and that type of thing in the 80s. And what it did, it sort of made an awareness by all the Chemical companies that we need to act responsibly in the communities with the way we're dealing, with the way we're handling things, and it got an organization together that started to develop certain codes of practice, and principles that we would follow when we manufacture and how we dispose of waste, and those types of things. So generally, the reason being that there was a need for it. It was seen by the chemical industry that we needed something like this (CCPA) so that we can show the public that we are essentially doing these types of things, activities, responsibly, that we take a cradle to grave attitude with our chemical handling.

E- 160. INTERVIEW 10 (4: 25 - 34): But I think as you start to take the position on the environment, from our perspective, it comes out initially with: where does the company stand on and how does the company support it. I guess one of the things that I think helps all the employees and certainly line managers like myself is to understand in this country, since I'm up here on a temporary assignment, is where does this company position itself on the environment. Our president is very explicit about that.

APPENDIX F

SELECTED DATA QUOTATIONS - FIRM F

F - 1. Interview 51 (2: 46 - 53): I think most of it has to do with regulation. Like if you were driving down the street and they didn't enforce the seatbelt law, you wouldn't put it on. If there was no one breathing down these guys necks, the probably wouldn't spend a dime. So, I would say about 80% is because of regulation and 20% is because they live in the community. Why should we put in a $500,000.00 thousand containing pond if we can dump it into the river and pocket that money.

F - 2. Interview 50 (1: 49 - 50): One of the reasons is because government is watching the licenses and the reporting procedures more.

F - 3. INTERVIEW 22(2: 17 - 29): Public notification for renewal of approvals, operating approvals are what the government issues us so that we can discharge contaminants into the air and into the water and you need these operating approvals to operate legally in the Province for these large facilities. Industries like the ones we are involved in. And so part of the whole regulatory process involves notification, either advertisements in local community newspapers or if you want to change your approval like they call them amendments, or if you're going to renew your approval they always expire on a certain date. This site in Ft. Saskchewan will require their approvals to be renewed in 1996. They are generally five years, but now the ones that are being issued tend to be for ten years. It's the governments answer to cutting back, their answer to deficit reduction. We'll give these people a long term approval so that they don't have to keep coming back to us, and we don't have enough staff to administer all of these things anyway.

F - 4. Interview 37 (4: 1- 6): There isn't now, but I understand that site license requirements are up for renewal this year and part of the requirements are public meetings. I think there are a lot of people that are not very happy about that. I would expect that's because they'll get the same thing that Dow's experienced.

F - 5. INTERVIEW 18 (6: 14 - 27): Well, Alberta Environment is in the driver's seat here. Sort of based on the premise that you don't let your boss down. If you're a customer of ours, we don't let that customer down. So we always give them as much information as we have. The other things that the act emphasizes, and there's all sorts of reporting regulations and that sort of thing and of course we adhere to them, but what we really adhere to more than anything else is environmental impact. So anything that is on our site might have an impact. For instance, Urea is not regulated by any of the acts or anything. But if we have a cyclone and a cloud of dust goes off the plant site and falls on somebody's car off the site we report that to Alberta Environment. And of course we tell the people whose car it fell on, and wash their cars and all that but the legalistic interpretation of it is that it is not regulated by the transportation of dangerous goods act because it is fertilizer and doesn't have a serious environmental impact, but just the fact it fell of cars is an environmental impact. In fact, perception is an environmental impact, that's what it comes down to. So if you think you smell something we treat that as an impact.

F - 6. INTERVIEW 19 (4: 40 - 42): We're driven by the same pressures, but we're not driven in the same way. In other words, government wants to be re-elected.

F - 7. Interview 37 (1: 50 - 2: 2): The corporation is much more aware than they were in the early eighties of the need to protect the environment. To their credit, I think that's partly on their own and partly due to the changes in legislation that have been driven by public opinion. Fifteen years ago there wasn't a specific environment department.

F - 8. INTERVIEW 19 (11: 8 - 17): The standards keep ratcheting up and you assume that's based on science. In some cases yes, in some cases no. You can't argue that a pound of something in the environment is bad. The question is: How bad? And then you get into background. We have an issue with the Saskatchewan River right now because the city puts in a great deal of nitrogen and because of that Alberta Environment would like us to not put very much at all in, but if we were on a different river with no city, we could put more in. So, you're wrestling with those kinds of concepts.

F - 9. INTERVIEW 22 (7: 2 - 6): I think external to that, is the push from the regulators, and the companies wanting to maintain a bit of a buffer between their performance today and the regulations either today or tomorrow. You don't want to be that close to the line. Because when you have a big "oops" the consequences are that much more, could be much more severe than they were a few years back.

F - 10. INTERVIEW 22 (10: 32 - 11: 3): You know they've (lawyers) had a far greater influence on this environmental stuff than they really should have had. I think that every person that practices law should have to do some real work in the real world. (Laughs out loud) There's my knock on lawyers. I don't think you can draft laws and regulations and not know anything, and not know how they're going to work, and how it's going to influence things. I remember attending presentations, I think it was for Bill 53, it was called that then, the new Environmental Protection Act in Alberta, and I recall hearing a presentation made by the Environmental Law Center, and they were talking about pesticide spraying, how the farmer should have to notify all of his neighbors before spraying. I thought to myself like "get real, like at four o'clock in the morning when there is no wind you're going to phone up your neighbors and tell them you're going to spray", like I'm sure they are going to be happy. There is no concept of practicality, so that's my thing about lawyers.

F - 11. INTERVIEW 22 (11: 7 - 11): Yeah right, and I mean it's interesting to me that in the fourteen or fifteen years that I've been in this environmental arena that it seems that every major law firm in this country has an environmental arm or has an environmental wing. I mean, fifteen years ago I don't think there were any. And it's a self-perpetuating business.

F - 12. INTERVIEW 22 (7: 11 - 16): I think that would be fascinating to see. I guess the closest I've ever been to a company being shut down was Proctor and Gamble up in Grande Prairie, and they voluntarily, or they were issued a control order and they took some action. But to be perfectly honest you can't shut down and improve. How do you know you're improving your operation if you're shut down. So you have to make your changes on the fly. You may have minor shut downs to implement the changes, to improve and comply.

F - 13. Interview 51 (4: 21): They're in there for the money.

F - 14. INTERVIEW 19 (13: 26 - 35): Back to the leadership of our firm, I think number one is to keep us out of jail because the Directors are liable and so are the officers. So, run the railroad so we don't end up in jail. That's probably the big driving force here. I would say the next level is the perception one. Keep us out of the newspapers and unfavorable light. In other words, maybe I haven't been sent to jail by the regulators, but if there's articles in the Journal every week that you're not doing this or that or aren't doing something, that's not good for the company's image.

F - 15. INTERVIEW 19 (7: 29 - 36): (We wanted to be) Out in front of regulations (In Imperial). Other companies say "Times are tough. We're going to have to walk that line because we can't afford anything more." I think you will see companies go through cycles. If they hit a few good years, they'll begin to spend a bit more. Be more further looking. If times are tough ... if you have to go the banker for that million dollars, she's a lot tougher decision versus funding it internally.

F - 16. Interview 50 (3: 6 - 11): Well number one, corporate profits is the bottom line, and always will be. If they are not giving a return to their shareholders, they are not going to be in business very long. So what they do is say that they can afford to do so much. That way, the people on the floor can see that they are doing something.

F - 17. Interview 50 (4: 21 - 23): (Real or PR?) I think it's real. They're going to do the best that they can do as long as they are showing a return to the shareholders.

F - 18. Interview 50 (4: 29 - 33): You could look at it and say if this year they're having a banner year in terms of corporate profits, so maybe they'll put in a scrubber or whatever. I think they would do that, but they still want to show that return to the shareholders.

F - 19. Interview 50 (4: 38 - 42): I think they'd have to look at how much money they had to work with and if it was viable for them to change the process to prevent an environmental incident. They are forward look so, if it was economically viable, they would do that.

F - 20. Interview 50 (5: 4 - 11): Well, the equipment is reliable, but some of it is fairly old so if something does down and you have to change the equipment, they just put the same old equipment in there. They don't look to see if there's something better that we could put in there. Then again, each area is responsible for their operations budget so managers of those areas are probably looking at what the return will be, so they get by with what they've got.

F - 21. INTERVIEW 19 (7: 29 - 36): (We wanted to be) Out in front of regulations (In Imperial). Other companies say "Times are tough. We're going to have to walk that line because we can't afford anything more." I think you will see companies go through cycles. If they hit a few good years, they'll begin to spend a bit more. Be more further looking. If times are tough ... if you have to go the banker for that million dollars, she's a lot tougher decision versus funding it internally.

F - 22. Interview 37 (8: 7 - 11): There usually are benefits in terms of increasing efficiency, if you figure out the capital costs of doing all those kinds of things. Every little added piece of efficiency helps keep a forty-one year old plant a little more reliable.

F - 23. INTERVIEW 18 (3: 5 - 18): So the whole Board got voted out by the shareholders. ... We ended up with these investment bankers running the company, and so their orientation is different again, so we've been going through all of these changes in culture. ... We've been a very conservative company and expansions were big news for us, but these guys are doing things like that all the time... and finally made this deal for the acquisition, so now we're the largest fertilizer manufacturing company in Canada and North America. Well they've done a good job in restructuring the debt, like they made it all long term debt, so it's not like the bank is looking over your shoulder, and asking where the money is coming and going.

F - 24. Interview 51 (1: 49 - 54): I think these plants here keep an eye on each other. Like Dow watches S2 and firm F watches Dow or whatever. If they release too much of something, then somebody gets a phone call and they try to rectify the problem. We all have to live here, so there's no use anyone polluting the river.

F - 25. INTERVIEW 18 (3: 23 - 27): We're not in the consumer products business, and that's the difference between us and someone like Dow Chemical. They have a consumer identity with all their products, and the same with Celanese, and even Esso. Our metals are sold to someone else who makes them into something else. We're sort of like a wholesaler. We sell them to somebody else who then sells it on the marketplace.

F - 26. INTERVIEW 18 (4: 12 - 16): That's right. It's not as direct. You know we don't sell bags of fertilizer that say firm F fertilizer on them, you can't go to Safeway and buy FIRM F fertilizer for your lawn, it's not quite the same direct pressure I guess. For the Redwater site, that fertilizer is continuing to go to the Engro dealers, so it's sold under the Esso name not under our name. So about half of our fertilizers are sold under the Engro name.

F - 27. INTERVIEW 19 (13: 26 - 35): Back to the leadership of our firm, I think number one is to keep us out of jail because the Directors are liable and so are the officers. So, run the railroad so we don't end up in jail. That's probably the big driving force here. I would say the next level is the perception one. Keep us out of the newspapers and unfavorable light. In other words, maybe I haven't been sent to jail by the regulators, but if there's articles in the Journal every week that you're not doing this or that or aren't doing something, that's not good for the company's image.

F - 28. INTERVIEW 19 (9: 27 - 32): There's an element of the public that's concerned. There're people out there that are very concerned about the chemical industry and these plants, be it the environment or safety or whatever. The public at large is sort of passive and might be interested, but not interested enough to take the time to do anything.

F - 29. Interview 37 (3: 26 - 33): As individuals, which is true of health and safety too, they don't come to work in the morning and say that they want to pump five hundred pounds of cyanide into the river. So their conscience as individuals in a society that is slowly moving in the direction so they have no choice but to follow, or at least to more aware. Management systems aren't necessarily built to make those thoughts more paramount.

F - 30. INTERVIEW 19 (9: 37 - 39): I'm not sure whether or not they (the public) have faith or that it's just not important on their priority list. Do I go to the meeting or do I go golfing? It's a nice day. Here I go.

F - 31. INTERVIEW 22 (3: 26 - 31): I've thought about this role of working very closely with the people involved in the regulatory side of the business. So it has, although I don't know if there is a huge majority of people out there who are vocal. I don't think so. I think there are a very small minority of people who will actually take the time and effort involved to get involved. And so perhaps we're spending a lot of time and effort in trying to appease a vocal minority.

F - 32. INTERVIEW 19 (10: 19 - 23): General public interest is dropping, but there's still special interest groups out there. They're still very alive and well and I feel science continues to tell us that certain things we are going aren't good for either health or environment.

F - 33. INTERVIEW 22 (2: 8 - 11): This is a new role for the company. They've not had somebody designated as community affairs coordinator before and it's strategically located in the safety health and environment area for the very reason that many of the community issues are safety or health or environmentally related.

F - 34 . INTERVIEW 18 (10: 39- 11: 2): And every so often they'll have a big open house and invite all the neighbors in within a three mile radius. And we start out by visiting everybody within a three mile radius, and just going in and telling them I'm from firm F the Redwater plant and we make fertilizers, and we have an Emergency Response Plan, so if you receive a telephone call this is what is probably about, and we hand out a package of information...

F - 35. INTERVIEW 18 (12: 27 - 34): Our first priority is to be concerned about the health and safety of the people. So it's people on our site, people off our site, the communities next to us. And the government. And the people that use our products. And it's not necessarily in that order, it's who is closest to the end of the gun. It's not like we're picking employees over people in the community, it's just that if something happens here the employees are the first ones to feel it. Everything is guided by that principle that we've got to protect health and life over everything else. (If) we have a choice whether it's complying with the law or protecting someone's health, the law will be second.

F - 36. INTERVIEW 22 (17: 23 - 28): We forgot the media, they are a big stakeholder. Not just the media but all external publications like trade journals and that as well. And special interest groups, the environmental people. There are a lot of stakeholders. And I guess maybe that's the biggest thing, that a company like Sherritt has to recognize that they don't operate in a vacuum or isolation, that they have a tremendous amount of influence and impact on a lot of people.

F - 37. INTERVIEW 18 (3: 37 - 4:2): So it's not the same. Like it's important for Dow, as part of their business, they are selling their own image. Well it's important to us to but not nearly as important as it is to Dow, so we don't do the same degree of publicity, and kind of advertising, and talking about what we do as a company like Dow does. For instance our whole public relations department has two people for the two sites, and Dow has thirteen or fourteen.

F - 38. INTERVIEW 19 (12: 26 - 34): Imperial for example was very concerned about it's image to the general public. Part of that reason was that they were a consumer type company. Dow is the same. They sell a lot of consumer products. So, if the public don't like you because you ain't green, they are not going to buy your product. We're in a very different position. We don't sell our product to the public at large. We sell nickel throughout the world. We sell fertilizer to farmers.

F - 39. INTERVIEW 19 (10: 10 -12): And you see that (increasing interest in economic and employment questions from the public) in the public opinion polls. Environment has been dropping on a constant basis over the last five years.

F - 40. Interview 37 (5: 28 - 29): I don't believe for a moment that Dow or Dupont is doing any better or worse job than we are.

F - 41. Interview 50 (7: 23 - 32): (attitude toward environmentalists?)I think they do a good job in a lot of cases and in a allot of cases they hurt them-selves. I went to an environment health and safety conference in Saskatoon where the theme of it was sustainability. It made perfect sense. You can have jobs and protect the environment at the same time. It's just a matter of sitting down, discussing and doing. Then again, if the company is not willing to do that, you have to fight them somehow. I think the environmentalists do a lot of good. They point out a lot of areas where companies aren't such good corporate citizens.

F - 42. Interview 50 (7: 36 - 38): The media are an important way to bring the knowledge to everyone. If the media doesn't report things, the general public aren't aware of it.

F - 43. INTERVIEW 19 (13: 32 - 45): If there's articles in the Journal every week that you're not doing this or that or aren't doing something, that's not good for the company's image. That is read by shareholders now and the financial community and as you said, the banks are now getting involved so your lenders might say: What are you guys doing out there? We just changed the lending rate because we think the risk is a bit higher, because, you know, it's our money." Our licenses these days are now containing clauses that are saying: Here is the standard today, but a year from now you must achieve this and two years from now it must be that, so that drives investment and practice to achieve those new standards.

F - 44. INTERVIEW 19 (8: 32 - 35): (effect of Bhophal on performance or on perception of industry?) At the time of Bhophal, there was Bhophal, there was a really significant fire in Mexico City. An Liquified Petroleum Gas terminal went up and it killed a few hundred people, if I recall.

F - 45. INTERVIEW 22 (6: 15): Oh I think Bhophal had a big influence. I mean it could happen here.

F - 46. Interview 50 (3: 43 - 45): I think they do. I wouldn't say they do huge stuff past what the license allows them, but they do more than the license requires.

F - 47. INTERVIEW 18 (4: 22 - 27): I mean as far as all those other fundamentals I feel the same as they do about all that yeah. Environmentally we approach it on an ethical basis, and of course we're trying to stay ahead of government regulation, we see the government regulation coming and that was the other pressure that came in. When I took over in 1986 there wasn't the same pressure or enforcement that there is now.

F - 48. INTERVIEW 18 (11: 38 - 12: 7): Yeah. Something I haven't said yet, and I just want to say it. The reason I'm here, is that we do have an environmental policy. We have a policy, and standards and procedures, and an organization, and of course we want to comply with all the laws and regulations, we want to look good to the community. There have been some pushes and prods from the government. It doesn't take that much. Industry has been thinking about it all along anyway, and has been moving in that direction. Like we're sort of like a duck you know. All calm on the surface but underneath you're paddling like hell, it doesn't look like much is going on but there is lots going on under the surface. So, the government comes along with a new regulation or an act or something like that, it may seem like this is something entirely different and new but we've been prepared for it

F - 49. INTERVIEW 19 (5: 4 - 16): They (government) can be (more concerned with perception than performance). Not necessarily. I think the way our Alberta Environment protection is structured right now, is that they have a soils division, a water division, an air division and so each of these divisions are charging very hard to get their problems fixed and it's only recently at a very high level that Alberta environment is sort of saying: "Gee, we probably can't do everything at once, so industry you tell us which of these is the most important." We understand the concept of sustainable development and so let's try and prioritize what we need to do here. We recognize each of our little empires will pressure to do their piece, but there is a bigger picture. That is pretty refreshing stuff.

F - 50. INTERVIEW 22 (11: 17 - 20): Yes, yes. And everything is subject to interpretation, and yeah I can buy that. This is the twist we can put on that, nothing is black and white. And especially in terms of environmental things I can see that things are not black and white.

F - 51. INTERVIEW 22 (12: 1- 4): And we've had some debate about reporting. If it spills but there is ... it's on asphalt or in a contained area, do you still report it even though it's bigger than the quantity you're supposed to report. Is it something you need to report? Especially since so much of what we make is fertilizer, and it's inorganic anyway. The only organic thing we make is Urea.

F - 52. INTERVIEW 22 (11: 25 - 29): I think that it is not black and white. We wrestle with things like reporting, incident reporting. What does "immediate" mean, does that mean dropping everything including fixing the problem, or does it mean after you've taken care of all the safety type matters then you go report it, within a day or two, or whatever is reasonable. So things are not black and white.

F - 53. INTERVIEW 22 (13: 33 - 36): This stuff (environmental change) is not going to get done by the government. It's not going to get done by the community. It's the business line, you know, they could say, we're going to go home and play with our own toys. They could simply say goodbye.

F - 54. INTERVIEW 18 (12: 11 - 14): Yeah, we've had input into it. Yeah we know what's coming. We just had a meeting with the government, they're going to introduce fees into the approval process. They told us they are going to do this, and we told them what we thought of it. We don't think it's a great idea.

F - 55. INTERVIEW 18 (12: 18 - 20): Both ways, but they want input. We're just part of the community, and it's an easy way for them to get input from us because they just go through the Industrial Associations. But they'll come straight to the company as well.

F - 56. INTERVIEW 18 (5: 26 - 33) No, I wouldn't know for sure because it depends on the reputation that you develop. And I think that I have a very good reputation with them, and they trust me, so I don't know, they're not investigating me. I don't have a problem. When I tell them what it is they believe what I tell them. They investigate you a few times and if you turn out on the spot all the time then they don't come out and look at you. So I think it's your history of reporting. They look at how many complaints came from the community versus how many came from the reports you made voluntarily. If your voluntary reports outnumber the community reports then there is going to be less pressure on you.

F - 57 INTERVIEW 22 (12: 33 - 34): And the amount of testing that is required if getting tougher. It's more. I don't think that's a bad thing.

F - 58. INTERVIEW 18 (5: 13 - 22): It's still that way to some extent, but there's a lot more legal people. Kowalski was going on about how he was going to bring on lawyers, technical, and get away from engineers. Engineers are good for some things but maybe not good for making laws and that kind of thing, so they brought some legal people in there. ... and they have more of a legal orientation than they used to have.

F - 59. INTERVIEW 22 (9: 35 - 38): If we look at Canadian laws and regulations, especially in the Environmental area, where do you get them from, and you get them from the States. The Toxics release inventory down there, gee we have the new act up here.

F - 60. Interview 37 (4: 40 - 44): But have they (the government) ever successfully been challenged? For example the Paddle River Dam or the pulp mill in Grand Prairie or whatever it is. It's all complained about (by the public), but nothing ultimately every happens. They (the government) just spend a few million dollars in court (and then they do what they want).

F - 61. INTERVIEW 19 (4: 46 - 52): Industry may be short-term too (as is government) because they're looking at next quarters profits sometimes. It all depends. You're being driven by the same theme, but in a slightly different direction. An example would be if the public got an issue, and the government wants to look as though it responding in front of the people in the media and may or may not be doing ultimately the right thing for the environment.

F - 62. INTERVIEW 18 (4: 27 - 35): As you will probably recall, Alberta was the first Province to have Environmental laws and regulations. ... They worked with

Industry on sort of a technical basis, sort of Engineer to Engineer. And, starting, it started with the Western Cooperative when Ken Kowalski was Minister, and we had the Western Cooperative release in March of 1987, when a cloud of sulphur trioxide gas went into Calgary and Kowalski got embarrassed by it, and so at that time they decided to overhaul the laws and regulations and a big study went on. It has kept building since then. That's what happened in Alberta, but the pressure was building all over the world.

F - 63. INTERVIEW 18 (4: 40 - 5: 2): Well, they (Federated Cooperatives in Calgary) had a release and they didn't even know it had happened, as far as I know, and then it actually took over a couple of days for Alberta Environment to track down where it had actually come from, and then Western Coop said, after reviewing their records, well it must have been us because we had an upset in the plant at the time involved here. Then Kowalski , with his usual foot in mouth problem, went along yapping about how he's going to throw them all in jail type of thing. The trouble with Kowalski is he didn't know his own regulation. So he went and said things that he couldn't produce, and then it turned out when they looked at the licence that WC had, and the laws and regulations that were in place, they couldn't touch WC because WC claimed they were in a start up mode and there was a start up waiver clause in the licence. So they couldn't prosecute them, so he got egg all over his face.

F - 64. INTERVIEW 19 (14: 22 - 31): To an extent they are (grandfathered), but again, this is when government is juggling jobs versus the environment. So industry will go there and say: You can't do that. And shut her down. Then the negotiation starts. The government sometimes gets caught in the middle negotiating with the public especially now because we have a very public process for license renewal, for example. So, here they're caught in the middle. Here's the public and here's industry saying "well I can't quite do that because of these reasons". Those guys are perhaps saying "I don't care".

F - 65. INTERVIEW 19 (11: 8 - 17): The standards keep ratcheting up and you assume that's based on science. In some cases yes, in some cases no. You can't argue that a pound of something in the environment is bad. The question is: How bad? And then you get into background. We have an issue with the Saskatchewan River right now because the city puts in a great deal of nitrogen and because of that Alberta Environment would like us to not put very much at all in, but if we were on a different river with no city, we could put more in. So, you're wrestling with those kinds of concepts.

F - 66. INTERVIEW 22 (3: 31 - 34): But still, the government has laid out certain rules about how you can play this game called operating in this province. And we're trying to abide by those rules. Some of those rules require us to go out and talk to people which the Industry has not had to do in the past.

F - 67. INTERVIEW 18 (6: 14 - 27): Well, Alberta Environment is in the driver's seat here. Sort of based on the premise that you don't let your boss down. If you're a customer of ours, we don't let that customer down. So we always give them as much information as we have. The other things that the act emphasizes, and there's all sorts of reporting regulations and that sort of thing and of course we adhere to them, but what we really adhere to more than anything else is environmental impact. So anything that is on our site might have an impact. For instance, Urea is not regulated by any of the acts or anything. But if we have a cyclone and a cloud of dust goes off the plant site and falls on somebody's car off the site we report that to Alberta Environment. And of course we tell the people whose car it fell on, and wash their cars and all that but the legalistic interpretation of it is that it is not regulated by the transportation of dangerous goods act because it is fertilizer and doesn't have a serious environmental impact, but just the fact it fell of cars is an environmental impact. In fact, perception is an environmental impact, that's what it comes down to. So if you think you smell something we treat that as an impact.

F - 68. INTERVIEW 19 (10: 34 - 11:2): It depends whether you feel good about our government or bad about our government on a given day. Certainly our elected officials may not have the understanding of science. You'd expect the bureaucrats though, to have that good fundamental understanding. ... In addition to their own bureaucrats feeding them information, there's all the lobbyists and then, in a lot of cases, different governments have different agendas. I think the classic that we're dealing with today is Sheila Copps versus Ann McLelland at the federal level. Copps is deputy PM and Minister of Environment so she's pushing hard for tougher regulations and McLelland is trying to keep our energy industry going.

F - 69. INTERVIEW 19 (4: 23 - 31): Well the rules of the game have changed in terms of there are more regulations out there. I think in terms of industry, society, in general, better understands what they may or may not be doing to the environment. There's a alot of regulation driving, but I think there's a little bit of consciousness too. Depending on the company, and in some cases, depending on the individuals in the company, it depends what your value set is. And, the public expectations are much different.

F - 70. INTERVIEW 19 (7: 47 - 8: 8): If you spill fertilizer it's no big deal to be cleaned up. It's not going to harm anybody. It's not going to harm the environment. We have risks in the plants, though, that could kill a number of people or affect the community, so those are the ones you want to manage very carefully so you want the appropriate practices in place. Hydrocymonia, for example, is a compressed gas so if you are hauling it over the countryside and you have an accident and release it, you won't damage the environment particularly, but it is a serious safety risk. So, for that we want to have good management around and the fertilizer industry has some good standards around that. So, there again, you need to know your risks and manage them appropriately, but you need a framework and a system to do that. Responsible Care can do that.

F - 71. INTERVIEW 19 (9: 1- 16): Yes, we could have a major ammonia release. So, we are designing our facilities and re-designing our facilities to minimize the potential of such a release. We then say: We've done what we think is proper there. We've analyzed the risks. Addressed the risks in a prioritized fashion, but we have not for sure eliminated the risk. There is a one in x million chance that we may have a release of this magnitude. There is an even lesser chance, but still a chance, that we could have a release of a bigger magnitude. So, when you say: Given that a release may occur, how are we going to manage that release. So, you start to work your emergency preparedness and response programs. And you can do things like clean mapping, trained teams to respond and simulate, train your management to respond to such an emergency.

F - 72. INTERVIEW 22 (6: 19 -21): I think part of that was driven by the Canadian government. That happened there (incident in Bhophal 1985), so what is the situation here in Canada. Could that happen here. Let's make sure that we manage our risks so that it doesn't happen.

F - 73. INTERVIEW 22 (7: 22 - 25): I don't know how it would play out. But this is my perception I guess, They would not be shut down for an environmental violation but if they had fatalities or risk to health and safety that would be the cause for a shut down versus an environmental violation.

F - 74. Interview 51 (5: 30 - 41): I wouldn't say never. There's a possibility. Look at the spaceshuttle. It can happen here. I hope it doesn't, but we're only human. We all make mistakes, but I don't think anyone wants to die before their time and I sure hope no one's trying to move me along. I think everyone's pretty careful thought. We're dealing with a allot of different chemicals, like hydrogen, nitrogen, natural gas and all of those. Then you have Dow right beside us, so you never know. Like that tornado that hit couple of years ago, If it would have been like 100 feet over, it would have blew Esso right out of there. So you never know with nature. But most of the guys who work here are cautious.

F - 75. INTERVIEW 18 (13: 12 - 22): We're more pragmatic about it I guess. We end up doing the same thing basically, just not as flashy looking as at Dow. I've been very successful in terms of getting money to do things. I think I've been successful in doing my job here, but it's partly because I know the company inside and out technically. I can speak to them in technical terms, and I can justify my expenditures. You know, we spend a lot of money on measurement of air quality and water quality and that kind of thing, and we can detect leaks and spills almost before they happen. Our plant is ringed by ammonia monitors for instance, so if there is an ammonia release going in toward any populated area, the city of Ft. Saskatchewan or towards Dow, we have equipment to measure that. Not everywhere, but if there is a population between us and the other side of us we have ammonia monitoring facilities.

F - 76. INTERVIEW 22 (16: 21 - 24): Shareholders are ... pretty significant since there is a new vice-president hired in charge of Corporate Affairs and his responsibilities include, my understanding is, investor and media relations. Investor and media and external sort of things, that's my read on the situation. Just judging from the poster that went up on the bulletin board.

F - 77. INTERVIEW 19 (15: 16 - 17): So it still goes back to economics. It might be the right thing, but if you can't afford it, that's the first test.

F - 78. Interview 37 (8: 7 - 11): There usually are benefits in terms of increasing efficiency, if you figure out the capital costs of doing all those kinds of things. Every little added piece of efficiency helps keep a forty-one year old plant a little more reliable.

F - 79. Interview 37 (8: 18 - 23): That's efficiency too (why D1 built their closed loop system). I don't have all the information, and nothing's every totally closed loop, but there's certainly cost saving in terms of bring in cold water and heat exchange and on top of that, cleaning it all up before it's discharged. There's efficiency recoveries, otherwise they wouldn't do it.

F - 80. Interview 51 (6: 19 - 26): I think it's government. When I used to haul dangerous goods, we had to sit on all these files about what precautions had to be taken so we don't endanger anyone. Like if you're hauling a tank of acid the stuff inside the tank costs less than $10,000, but the tractor trailer unit costs $120,000. If you have an environmental accident, you could kill people, plus the clean up which adds up to about two million. In the long run, I think safety pays.

F - 81. Interview 51 (1: 41 - 45): (What does the firm take environmental precautions?) I think it's for health reasons, so people don't get sick. It costs the company more if we go on sick leave or something. It costs them x amount of dollars to train and then if you get sick, you're at home getting money and they spent all that training you.

F - 82. Interview 51 (4: 21): They're in there for the money.

F - 83. Interview 51 (4: 7 - 10): It's not worth the fine. It's just like the farmers and the purple gas. You can go for years and years not getting caught, but if you all of a sudden do, the fine is $10,000. Did you really save anything over the ten years?

F - 84. Interview 50 (4: 7 - 15): Definitely, they are a lot more forward looking than the old. They're not in this just for the year, but for a longer term. The outlook is that in so many years they want to increase the viability of the company in so many many years and they have increased it by about ten fold since they took over. They're sitting in a pretty good cash position right now. This joint venture with Cuba was a big acquisition. It guaranteed us feed stock for about twenty-five years.

F - 85. Interview 37 (2: 18 - 20): In a general sense, anyone could flush something down the sewer and not think about where it was going or what was in it or where it was going to end up.

F - 86. INTERVIEW 19 (2: 1 - 5): I think we have struggled, in the past, with "I don't want to spend anything versus let's spend a huge amount of money and then they look at the bottom line and say, that's not going to work. So they wanted that kind of leadership in safety, health and the environment.

F - 87. INTERVIEW 19 (2: 29 - 37): (Sounds like your firm has had trouble positioning the environmental department?) Yes. Howard has provided a lot of continuity, in that he's been in the position for a number of years now. Actually, the previous health and safety manager, because Gary's another Imperial guy and he ran health and safety and environment for Redwater, it just bounced around until it was slotted in.

F - 88. Interview 50 (7: 44 - 48) Well, that's the bottom line. Everyone has to have money to live. I guess you can look at it as what kind of living conditions you want. If you have lots of money, but you're slowly killing yourself, you have to weigh that in your mind.

F - 89. Interview 51 (7: 38 - 44): Like with the quality of air in California. Someone must have put something together and said if we don't put an end to this, we'll all be wearing masks. People are getting more educated and putting two and two together. You can move away from here and go to Phoenix, but it's still going to catch up with you there. I think that's happening all over the world.

F - 90. INTERVIEW 19 (7: 20 -24): That's an interesting challenge for us today because we're firm F. We make our own rules. So, what should those rules be? Where do we set our standards? And it goes back to the discussion which is how much is the right amount?

F - 91. INTERVIEW 19 (3: 40 - 2): Imperial had their own set of standards and you could take their standards and take Responsible Care and match them up. It wasn't a perfect match, but ultimately it fit. It was just organized in a different time frame. We don't have all that in place in our firm today, but we feel we've got fairly strong management backing that we need to do that. There's always an issue to what extent the standards within Responsible Care are. It's not completely clear. They are more stated as principles, but we believe a well-managed safety and health and environment program would have all of those elements in it anyway. A great number of those are in place here already today.

F - 92. INTERVIEW 22 (8: 4 - 10): So that's what I think, but what the company has stated is that the practices and policies that we have here at the Redwater site, which was once a CCPA site, will continue, we're not going to reduce our standards, but we just can't use the CCPA Responsible Care logo because it is trademarked. But those practices ... will continue, and you can compare those chemical safety management practices with the Responsible Care stuff.

F - 93. INTERVIEW 18 (9: 11 - 23): It's just economic pressure, that's what it is. If we were selling, if our product went into corn flakes boxes or soap boxes and the public said well, they don't have a good environmental reputation so we won't buy their product you can be sure we would belong to the CCPA if that was going to help us sell our product. But I guess that we don't see that the CCPA is going to help us sell our product. It's other things. It would help to enhance our image in the community, it would we could ride the coattails of the CCPA reputation, it would, we wouldn't have to reinvent the wheel. If you belong to the CCPA you don't have time to invent new programs, they have enough out there, enough things to comply with to keep you busy for the next ten years. If we belonged to the CCPA today I wouldn't have enough time to think about anything else except complying with the CCPA. It takes a fair bit of effort, and a lot of window dressing A lot of window dressing that you need to change to comply with CCPA. It would mean that we would have to have extra staff,

F - 94. INTERVIEW 19 (2: 45 - 48): (Maybe join the CCPA?) There has been some discussion. The CCPA is a hell of a fine organization and I think they are one of the best industry associations around from what I've seen from in term of their leadership of their industry.

F - 95. INTERVIEW 19 (4: 7 - 11): (Question about the principles of Responsible Care.) It's good motherhood stuff. Very hard to disagree with.

F - 96. INTERVIEW 18 (8: 37 - 9: 6): It's partly the culture. The advantage (of joining the CCPA) would be that you would be trading on their reputation. They have a reputation, a good reputation. To try to be sure that they operate responsibly, they operate their plants responsibly, and they have all kinds of programs to protect the public and they have stewardship programs to care for their products. They do an awful lot of advertising about all the good things that they do. And that's one thing we don't do. The perception or feeling within the company is that we don't produce consumer product so we don't need the advertising. It's not the same pressure. Personally I think that joining the CCPA would be a good thing for us. But the other thing is, it's not only expensive to join it, it's expensive to comply to it, you have to install all sorts of programs and auditing programs, so the cost of compliance is high too.

F - 97. INTERVIEW 22 (8: 17 - 22): I think there is a lobby benefit with the government. The CCPA are headquartered in Ottawa, and there's where a lot of the rules and laws are made. Made in Ottawa, and then the Provinces get to figure out how to implement those laws and regulations, and so I think yeah, if you want to be a voice, it's much easier to be an Industry voice rather than an independent firm voice lost in the wilderness, and why would an individual company have a lobby office in Ottawa. It would be just horrendously expensive.

F - 98. INTERVIEW 19 (6: 29 - 53): The CCPA could do a few things for you. One is that it's bigger than Responsible Care. In other words, it is a lobby group and I know that when the National Energy Program came out, for example, that the CCPA was working hard to have that changed. It just so happened that in the early 90s, as we sit here today, that the bigger issues seem to be around health, safety, and the environment with respect to the chemical industry. But, if you read the charter of the CCPA, it is more around ensuring that the Canadian chemical industry is first of all responsible, but secondly competitive on an international scale. So, in time, the focus may change greatly. But I think that they'll leave that Responsible piece in there forever. What does Responsible Care bring you if you're a company out there that's having some issues with your regulators and you're having lots of spills, lots of incidents, you're hurting lots of people, lots of transportation incidents. Responsible Care is a great cookbook to say: Where do we start and how do we fix this? The CCPA will give you support in how to do that. As I said, with Imperial, we had our own cookbook which worked out pretty good with the CCPA's. As part of the sale, we have that cookbook, so we hopefully use most of it and improve some critical areas that we see in this firm.

F - 99. INTERVIEW 19 (5: 23 - 32): The CCPA is a lobby group so they are trying to influence government. You're trying to do it by setting very responsible standards for your industry which is a damn good way to lobby. Instead of saying: Let's keep these regulations where we can live with them, they're saying: Not only are we going to influence regulations to what we feel is right based on science, they're saying: We're going to bring this new standard up. That's very credible because it will be interesting to see how to work through this.

F - 100. Interview 37 (5: 20 - 24): That's just public relations and that's the difference between the three corporations(firm F and D1 and D2). Firm F is very much the opposite with little or no public relations. There's 2000 people out there who are technically supposed to clear any comment out there thorough the company spokesperson.

F - 101. Interview 37 (5: 28 - 29): I don't believe for a moment that Dow or Dupont is doing any better or worse job than we are.

F - 102. Interview 50 (6: 10 - 17): I think the philosophy on the floor is that firm F is not a big company by standards of international companies, so the people are looking at it from a money standpoint. Dow and Dupont have tons of money. Sure firm F has money, but they are doing a little bit more than is necessary too. They can see that there is progress being made. To compare them to Dow and Dupont is a little bit unfair. Maybe per capita, they're doing just as much.

F - 103. INTERVIEW 19 (11: 8 - 17): The standards keep ratcheting up and you assume that's based on science. In some cases yes, in some cases no. You can't argue that a pound of something in the environment is bad. The question is: How bad? And then you get into background. We have an issue with the Saskatchewan River right now because the city puts in a great deal of nitrogen and because of that Alberta Environment would like us to not put very much at all in, but if we were on a different river with no city, we could put more in. So, you're wrestling with those kinds of concepts.

F - 104. INTERVIEW 18 (6: 32 - 36): Each firm interprets them a little bit different, but of course we all belong to Industrial organizations. We don't belong to the CCPA but we do belong to FSRIA, the Ft. Saskatchewan Regional Industrial Association. And we trade, we compare notes all the time, and I think there is a fair amount of equivalence among us as to how we conduct our business environmentally.

F - 105. INTERVIEW 19 (8: 18 - 25): It's probably more driven by if there's one or two bad actors in this industry, it's going to color us all bad. In other words, it was a chemical spill, it wasn't our spill. This really starts with Bhophal and there were industry groups at that time: What went wrong, because we are all getting colored by this. We don't all make that chemical which is very dangerous and toxic.

F - 106. INTERVIEW 19 (5: 42 - 48): (irresponsible behavior by very small users?) Yeah, the guy who buys a couple of tanks and sets up some kind of distribution and has spills or transportation incidents or a couple thousands barrels of stuff laying out seeping into the ground. I think that the big ones have their own set of problems and the risks are much bigger and everything else, but the industry again is very concerned about perception and the CCPA works very hard on that.

F - 107. INTERVIEW 19 (14: 5 - 17): (marginal firms being driven by fear of fines, etc.) Yes, I would say so,especially if you're in a marginal business. That makes it really tough because you've got a business that's barely making a profit, that might even be experiencing a loss, but is still generating some cash, so you can't spend millions to fix what ails it. Maybe it's an old business, so it was built forty years ago, to different rules. So, you're walking a very thin line that says; "I know I can't put very much money into this business because it will die on me, but something big (an incident) will most definitely take it out of business, and may hurt the corporate picture very badly." Like I said, Valdez could have happened to a number of companies and taken them right out of business.

F - 108. Interview 37 (9: 10 - 14): When you're an old plant, you develop a lot of dinosaurs, meaning management. We're starting to weed those out, both from efforts of the union and the absorption of the Redwater plant and mixing the two management attitudes.

F - 109. Interview 37 (3: 38 - 42): If you're in the middle of a busy shift and the system is set up in such a way that you have to do one of two things, human nature says you're likely to do the easy one. If the easiest one happen to be dumping whatever into the earth, then that might happen.

F - 110. Interview 50 (5: 31 - 33): It doesn't happen (expensive change with long term payback). The operators see things that could be a big ticket item that could help the process and they seen to get nowhere with it.

F - 111. Interview 37 (5: 41 - 51): If I could use a health and safety analogy, worker's compensation rates are an excellent example. We've got plants all around this area giving themselves awards for ten years without an accident which is a bunch of bullshit and we all know that. What it is is ten years without a worker's compensation claim, but they may bring medical attention in after he's been hurt on the job. The figures that we produce, I know are on and they're ugly. Consequently, we're paying a higher compensation rate, but no one's ever felt the need to pull the wool over anyone's eyes be that the public or their own employees.

F - 112. Interview 50 (8: 36 - 39): Management has made a difference. It's been pretty positive since they've taken over. He's a much younger person and he can relate to a lot of people on the floor. He does come out on the floor and talk to us.

F - 113. Interview 51 (2: 33 - 36): I see changes in the management who I didn't know were human beings until the last month or so. They used to just walk by you or walk down the floor and not acknowledge you, but now with the new guys, they stop and talk to you.

F - 114. Interview 37 (5: 1- 11): (What would the Union President do if he could?) I would set up in a way that every employee had a better understanding and therefore a better commitment. Mechanisms need to be in place so that such and such didn't need to happen. We can analyze the process by saying that there's a possibility that down the road this and this might happen, so let's do something before it happens. Rather than focusing the corporate efforts on meeting the regulations of the day and conforming to them. Which is fine, because at least we're doing everything to conform to them. Employees at every level should be more involved and more aware.

F - 115. INTERVIEW 18 (7: 14 - 15): We are using chemical processes but our products are not what you would call chemicals. Fertilizer is a chemical but we call it fertilizer.

F - 116. INTERVIEW 18 (8: 28- 32): It all has to do with your senior management. Ours were associated with mining and the mining business. They weren't associated with the CCPA so they don't appreciate it's qualities. They aren't insiders with regards to what CCPA does, so they don't have the same loyalties to it as other might.

F - 117. INTERVIEW 18 (7: 15 - 26): Our products are produced in very large quantities, and isn't something you buy in one pound bags at Safeway or something like that. The other thing is most of our products can be recycled or reused. Like nickel is a valuable product, and nickel or nickel alloy doesn't go to the dump it gets reused, and we do a certain amount of it ourselves. At our own plant here. Fertilizer is not something that you throw into a dump. Even if you had a pile of contaminated dirt you can throw it on your field and it will become fertilizer, whereas other chemicals are, you have no choice but to land fill them. Swan Hills or whatever. We do have catalysts and that in some of the raw materials we use in the process, they are chemicals and we have to deal with them as chemicals but the output is a different sort of an output. It's all related to what we make is what it all comes down to. What we make is different from what those other people make.

F - 118. INTERVIEW 19 (6: 9 - 20): The other comment I'll make on the CCPA that makes our firm value being a member a little less is that the chemical industry tends to be people at the front end of the chain clawing people further down as you go through the process of developing product. So, if you're in the chain somewhere and your suppliers are members and your customers are members, especially if your customers are members, then there's a lot of pressure on you to join in. Again, that's good for the fertilizer business, we stand alone. We buy natural gas, and sulphur, and phosphate raw. And we sell to farmers. Our customers, they don't care.

F - 119. INTERVIEW 22 (3: 5 - 9): Dow is held out as a model. Locally, from a perspective ... communications are important. Public perception is important. And so they spend the dollars, they have the people, they have the manpower the funding to do that kind of thing. I think they are unique in that area. As far as the chemical companies in this area are concerned. I don't see the other firms doing that to that extent.

F - 120. INTERVIEW 18 (8: 5 - 10): The other fertilizer products, you can turn over a carload or a whole trainload of fertilizer and the only thing is piles of fertilizer laying there and you should scoop it up before the water desolves it or something like that, but it's not a major hazard to anybody. The other thing we do produce is sulfuric acid which we do ship in carload containers. So anyway we do have, we have that capability but we just don't advertise it the same way that they (Dow) do. There aren't as many stringent rules and regulations.

F - 121. INTERVIEW 18 (11: 24 - 33): If we have a release that's going toward the city, we advise them immediately. They have a warning system and in fact they just had a practice on it a few weeks ago. But it's probably not up tothe same standard that this one is for the rural community at the Redwater site. That is a consequence of them belonging to the CCPA, that was one of the things they were required to do that we're not required to do. FSRIA is doing that but it's not going along as quickly as this one. ... we go straight to the guy that is going to be impacted. We go straight to you, and say, look, you're very close to the plant, and we have an automated system which in an emergency you will receive an automatic telephone call that will tell you what to do, and what you should do.

F - 122. INTERVIEW 18 (7: 31 - 7: 41): We handle it through the Fertilizer Associations, we have that same product stewardship. Like all the fertilizer producers are joined together to handle an emergency response, so there's, we have a terminal in

Manitoba, and I don't know if we have emergency response set up in Manitoba, but we have access to one. Simplot is in Manitoba. Saskferto is in Saskatchewan, we're in Alberta, in Northern Alberta, Cominco is in southern Alberta, and so we all have emergency response capability, we have a vehicle, a team of men, so if a tanker overturns somewhere on the highway we will go and rescue it even though it isn't ours. It's out of our gate, there is a product stewardship, and we carry that until it goes on the farmers field. And it gets stronger and stronger as time goes by. So if you're a truck driver and you drive down the road and you turn your vehicle over you're not on your own, we come and rescue you.

F - 123. INTERVIEW 18 (1: 33 - 38): And so then the President we had for about twenty years, he retired because he was sick, and we got a new president that had been with a Chemical company, And he had been involved with CCPA, on the Board of Directors of the CCPA, he'd been in the commodity chemicals business about 1985 when he took over. So we had a President that thought like a Chemical company President and not a mining company president. And at that time it was also when I took over this job as well.

F - 124. INTERVIEW 22 (9: 5 - 10): FIRM F is involved in the Ft. Saskatchewan Regional Industrial Association and they also are members of AREA which is an acronym for Alliance for Responsible Environmental Alternatives. Seems to me, and I know very little about it, it's not a one issue group, but the focus right now is on climate change. The CO2 thing. There's the conference in Berlin in March or sometime soon. So, those are two groups that I can think of that FIRM F is involved with, and I'm sure that there are others.

F - 125. Interview 51 (1: 34 - 36): All the equipment that they get now is more environmentally friendly. They don't emit as much to the air. They recycle more too.

F - 126. Interview 50 (4: 47 - 53): (If you were the CEO ...?) In my department, I would make sure the equipment was up to date. A lot of this equipment doesn't cost a lot of dollars, it's just that the equipment that we do have is a little bit obsolete and a new piece of equipment would put it right in line. I would make sure that equipment was available. It's little things. It's not big ticket items that help in the process.

F - 127. INTERVIEW 18 (8: 5 - 10): The other fertilizer products, you can turn over a carload or a whole trainload of fertilizer and the only thing is piles of fertilizer laying there and you should scoop it up before the water desolves it or something like that, but it's not a major hazard to anybody. The other thing we do produce is sulfuric acid which we do ship in carload containers. So anyway we do have, we have that capability but we just don't advertise it the same way that they (Dow) do. There aren't as many stringent rules and regulations.

F - 128. INTERVIEW 22 (12: 33 - 34): And the amount of testing that is required if getting tougher. It's more. I don't think that's a bad thing.

F - 129. Interview 37 (2: 27 - 29): We're working right now on an environmental practices handbook much along the line of a safe work manual.

F - 130. Interview 37 (7: 44 - 45): (Environmental mission statement?) Right now it's still fairly casual. We've got the handbook that we're developing.

F - 131. INTERVIEW 18 (13: 26 - 31): Because we don't want to have a an incident. To protect ourselves, to protect ourselves. And the community. To protect those stakeholders. It's a two way street there. Like my boss say this is why I want to have a (monitoring) system, because he said, you know that sounds like a hell of an idea because I wake up at night worrying about a cloud of ammonia going into town and hurting people, and it makes me feel a lot better that we have this sort of system in place.

F - 132. Interview 50 (1: 40 - 44): Reporting procedures have also come a long way. They've made sure that each employee knows how to report an environmental incident, what the steps are to go through that report, and it's a lot more comprehensive than it was about fifteen years ago.

F - 133. Interview 50 (1: 31 - 40): One example would be the ammonia releases. They are more concentrated on that. If we have a release, they want to know where it was from, how much it was, if there was a hint of ammonia in the air and so on. That has changed drastically over the past six years. I can remember when I first started working here, if you had a bit of an ammonia release, you really didn't worry about it that much and it seemed like the company didn't worry about it that much either. Now if there is even a hint of ammonia in the air security will phone you.

F - 134. Interview 50 (2: 4 - 10): My father-in-law used to work at firm F and he said you could smell ammonia outside your backdoor all of the time. They would report it to firm F, and nothing would ever get done. Now, if you report it to firm F, they immediately start an investigative procedure to see where it came from. The general public has become much more knowledgeable.

F - 135. INTERVIEW 22 (6: 32 - 7: 2): I think that the Industry should always be striving for improvement. We have a system here at Redwater that we call Environmental Performance Improvement Process where you have your inventory of machines or whatever and you identify where you get the biggest bang for your dollar in terms of reducing emissions . Or which ever of your units you are least comfortable with the compliance, the ability to comply with rules and regulations. So they would be targeted first of all. So you're always in that continuous improvement, it's a cliche, but you never stay idle, you never sit on your hands. That, I think, is really important. Not just for the public, but also for yourself and the credibility that the company has with it's employees. Most people want to be affiliated with a company that is progressive, that is moving towards improvement, that's growing, that's not stagnant, that's not old fashioned or things like that. That's what drives some companies, or some processes.

F - 136. INTERVIEW 22 (12: 19 - 24): We're getting more of them. I think they are getting tougher in the emission limits are heading downward, so what you are entitled to release is becoming less in terms of tonnage on an annual basis or kilograms per hour basis. And from that perspective they are getting tougher, and also now we are required to notify people which we were never required to do before, and this little exercise of renewing your licence used to be one letter between you and the Director.

F - 137. INTERVIEW 18 (5: 37 - 6: 10): If we zippered our lips up and never said anything, and there were all these complaints from the community they would be looking at us all the time. But we report of course strictly to the regulations and so if you are living in the community and you smelled ammonia we would report that to Alberta Environment regardless of whether or not we thought it came from us. So any complaint from the community we report immediately. Anything that we think could be reported like a cloud of smog going over the highway even though it wasn't hurting anybody, it was a weather related sort of thing, we would still phone that in and say: look there's a cloud of fog over here and we've investigated it and there's no problem it's just an inversion system we're having. That's sort of the history we have with them. It's not that we're any different from anybody else, the whole industry is like this.We don't take any chances at all. What, we want to have happen is that if you're a member of the community and you smell ammonia or something like that, you phone Alberta Environment about it and say something is going on with firm F and they say yeah they've already told us, firm F has already phoned us about it.

F - 138. Interview 51 (2: 5 - 11): I know these guys are right on top of safety and environment. Especially if there's a little spill or something. You have to record it a hundred different times. If it stays within the plant itself, then we can look after it. If it happens to go out the stack and onto the roof of something, they we get everybody up there and get that cleaned. There's a lot of paperwork.

F - 139. INTERVIEW 19 (12: 45 - 52): A lot of what they (farmers) are doing is affecting the ground water, so they're pretty quiet on that topic. It's actually the industry that is trying to get some good practices in place so that doesn't happen because the industry knows that if the farmers don't act responsibly, it's going to affect the industry too. Which goes back to worrying about your customers because if they aren't responsible, you're out of business.

F - 140. INTERVIEW 18 (8: 1 - 8: 5): Or if you're a dealer and you have a problem on your site, and have a release of ammonia, and these are small businesses and don't have the capability to handle things like that, so we step in and help them out. So there is a network spread out all across the prairies to deal with that. Mainly concerned with the ammonia.

F - 141. Interview 50 (4: 47 - 53): (If you were the CEO ...?) In my department, I would make sure the equipment was up to date. A lot of this equipment doesn't cost a lot of dollars, it's just that the equipment that we do have is a little bit obsolete and a new piece of equipment would put it right in line. I would make sure that equipment was available. It's little things. It's not big ticket items that help in the process.

F - 142. Interview 51 (3: 29 - 33): (Discipline for bad practice?) They call you in and want to know what's going on. They have a little kangaroo court. They'd give you a letter or something. You can't blame them. I could be walking along and there's a spill and I get sprayed with acid or something, that screws me up and the company loses.

F - 143. Interview 50 (8: 7 - 16): Workers are afraid to report it to management due to possible repercussions. That hasn't happened in the most recent years, but I know it's happened in the past, where an incident wasn't reported because the worker was afraid of disciplinary procedures. But, management philosophy has been changing over the years and I don't think there's that threat anymore, but I do know of two incidents off-hand where heavy metals went down into the sewer. The person who was responsible for it just took a hose and washed it down the sewer and never reported it.

F - 144. Interview 50 (8: 23 - 29): It is changing and I don't think that would happen now, but you never know. Over firm F's history, from when I got hired in 1977 to about 1984, the line level management were from the old way of thinking. You do as I say and if you don't they'll be problems. So, most went along with what they said and if they did have a problem, they never told management about it.

F - 145. Interview 50 (8: 1 - 3): (Visible mission statements?) Yeah, it's there. Now, is it being followed? The majority of the time it is, but there are cases where I know it isn't.

F - 146. Interview 37 (6: 45 - 54): Maybe the reason they don't (encourage workers to carry the corporate message out to the communities) is exactly that because if any typical group were called in for a meeting, even if we were being paid overtime to be there, we wouldn't like it. The whole attitude is that we're being snowballed or brainwashed or whatever. They get more mileage out of the employees just sticking up for their own jobs than they do carrying a corporate message. The other thing I can think of is that this is it for firm F whereas Dow and Dupont are huge transnational corporations and they have a policy coming in from their head office wherever that might be.

F - 147. INTERVIEW 18 (7: 9 - 14): The other thing is that the chemical industry, they have a reputation to live down because of Love Canal and stuff like that, and I don't know how much we are associated with that sort of the thing. I guess we look at ourselves as not being on the same playing field as some of those guys who have those troubles, so they have to make an extra effort to live that reputation down, where we don't.

F - 148. Interview 50 (2: 20 - 22): (How many people deal with community concerns or complaints?) I wouldn't say more than two or three people. Number one, we have a public relations spokesperson and then we have the environment person, so I would say three at the most.

F - 149. Interview 50 (6: 28 - 34): Firm F's never been a real attention getter. Over their forty year history, they've actually shied away from the media. That might be changing because now we have a vice-president of PR. As as far as PR people out on firm F's site, there's one and they can't even say anything without going to one of the vps.

F - 150. INTERVIEW 22 (2: 5 - 8): And a lot of that is being driven by the government requiring public notification and to some extent consultation. Consultation isn't regulated but it is expected, so that's why this role was created.

F - 151. INTERVIEW 18 (10: 28 -33): There is a CAP which Karen has a mandate to set up the same thing here in Ft. Saskatchewan, in fact the next thing I'm going to do after I talk with you is go around and visit the neighbors of the Redwater site to tell them what happens in an emergency. We have our automated telephone system to tell them there's an emergency and they should go in their house and whatever else they should do, and advise them.

F - 152. INTERVIEW 22 (12: 38 - 13: 4): Yeah, When I joined firm F's Chemical division at this site there were the Environmental Affairs Department had just been formed. There was a manager, and I think one other person, and then they brought in a few more people and then I was brought in toward the end of 1988. ... I say probably a year ago they had one person who was doing it part time in addition to their other function in another part of the business so we have a dedicated staff now in the occupational health and safety department of firm F of 24 people or something like that, so that's a big change from what it used to be.

F - 153. Interview 50 (3: 49 - 53): The first reason is because they want to be a good corporate citizen. The people that firm F employees live in this community. If you go to work and you know that they are just making the grade, you're going to talk about it in the community. If you know they're tying to do a little bit more then you're probably going to talk about that too, so their image goes up.

F - 154. Interview 50 (1: 49 - 53): In addition to that, with the change-over in management that we've had over the last five to six years, I think they're becoming more of a good corporate citizen. That's probably the biggest one; a different philosophy in the management style.

F - 155. INTERVIEW 18 (13: 26 - 31): Because we don't want to have a an incident. To protect ourselves, to protect ourselves. And the community. To protect those stakeholders. It's a two way street there. Like my boss say this is why I want to have a (monitoring) system, because he said, you know that sounds like a hell of an idea because I wake up at night worrying about a cloud of ammonia going into town and hurting people, and it makes me feel a lot better that we have this sort of system in place.

F - 156. Interview 37 (8: 48 - 52): I was actually trying to organize some coalitions with interest groups to have our say before some wing-nut in Sherwood Park who has never even been here goes off half cocked. There was nothing to form a coalition with. No groups.

F - 157. INTERVIEW 22 (5: 11 - 18): One of the first things I noticed coming up here was that, yeah, you look at the phone list, and you think Holy Toledo everyone is related to everyone else, and I don't know if that happens to be a rural thing or what exactly, but I think because the culture has been well engrained for generations. ... I think Ft. Saskatchewan is a very tolerant community. If you plop that plant in the middle of downtown Calgary I'm sure you would have a different situation.

F - 158. INTERVIEW 22 (10: 20 - 23): I think there is more urban influence in Ontario than in Alberta. I don't know what percentage of people would be considered rural, who are more down-to-earth, and a lot more practical. This is how things can be done, and this is what is good, and ...

F - 159. INTERVIEW 22 (16: 24 - 37): I think employees ... are a big stakeholder. And the people that live in close proximity to the manufacturing facilities are stakeholders. The municipal government where the plants are located are stakeholders. Even the municipal governments which aren't are stakeholders, like we deal a lot with the towns of Gibbons, Redwater, and people from Bon Accord, Morinville, Ft. Saskatchewan. Places like that. The regulators for the various government agencies that we do business with. Like Alberta Environmental Protection, like Alberta Labour, all of those people are stakeholders. There is a lot of them. Other industry neighbors and Industry counterparts are stakeholders as well... your suppliers and other people that you do business with, your people that transport stuff on your behalf, the railways. There's a lot of them. Users, the customers. Customers are big stakeholders.

F - 160. Interview 50 (6: 51 - 53): The community here is more concerned with D1 and the chlorine. Ammonia is fairly dangerous too, but it dissipates fairly quickly.

F - 161. Interview 37 (2: 40 - 48): Not only that though, we've come to realize that there wasn't necessarily any difference between the environment within the plant gates and outside the plant gates. Particularly in a community like this where the majority of the employees live within two or three miles of the plant. as well as that, we came to the realization that for that reason those kinds of issues need to be tackled by us rather than being imposed on us by the community. In my job I do what I can to protect the environment as well.

F - 162. Interview 37 (8: 39 - 43): I can only offer a guess would be that they're not particularly worried about it (community relations stuff from firm F). That maybe because they think they're doing such a great job that no one should be worried or sheer arrogance in realizing how much of the economy belongs to firm F.

F - 163. INTERVIEW 22 (17: 36 - 39): Some people are concerned and other people are not, rather complacent, but if it came down to something effecting them in their day to day life they would be very concerned and very interested. So maybe it comes down to "how does this impact me personally?"

F - 164. Interview 50 (6: 39 - 45): Not specifically the neighbors where I live, but when I'm out and around town, and they realize I work at firm F and am involved with the Union, they do ask questions. It's mostly economic. The odd time I've gotten a question about the environment and that would be if there was the smell of ammonia in the air. I can't even smell the stuff anymore. Very rarely do we talk about the environment.

F - 165. Interview 37 (4: 27 - 33): Acceptance is the word. The air is dirtier to breathe than other communities, but as long as no one is doing anything to raise the taxes and people are still getting paychecks, it's accepted. That's probably directed more to the government in terms of enforcement than they are to the plant. The question then is does the government enforce the regulations that they have? And that's iffy.

F - 166. INTERVIEW 22 (7: 31 - 35): I think it gets back to the concept of risk. Familiar risk versus unfamiliar risk. And also, being in control of that risk versus not being able to control it. If I choose to drive at 140 or whatever then that's my choice and I know that I am assuming in terms of getting a speeding ticket or potentially shmucking into something, heh heh. Versus walking down a road and something blows up beside you, there's differences that way.

F - 167. INTERVIEW 19 (9: 51 - 10:4): There is a CAP at Redwater. We do neighborhood visits in the Redwater area. We have meetings occasionally with the mayors and councilors of the towns in the area, plus the county of Sturgeon, if possible the MLA and MP to respond to any concerns they have, and for us to share any information we'd like them to have. These days, many of the questions from those kinds of people are more around development and jobs rather than environment.

F - 168. INTERVIEW 19 (4: 23 - 31): Well the rules of the game have changed in terms of there are more regulations out there. I think in terms of industry, society, in general, better understands what they may or may not be doing to the environment. There's a alot of regulation driving, but I think there's a little bit of consciousness too. Depending on the company, and in some cases, depending on the individuals in the company, it depends what your value set is. And, the public expectations are much different.

APPENDIX G

NUMBERING OF INDICATORS

ECONOMIC

EFFICIENCY CONCERNS

1 Efficiency (less waste) is also a lower liability
2 Large projects cause stalling in small projects
3 Firm wants efficiency in environmental spending
4 Improvements become more expensive over time
5 Being pro-active not that expensive
6 Environmental projects usually don't show return
7 Some behaviors very expensive but must be done

LIABILITY CONCERNS

8 Risk management because of liability awareness
9 Economic analysis is only meaningful analysis
10 Pressures from banks and insurance companies
11 Personal liability
12 Liability is a future economic cost
13 Environmental performance impacts economic performance
14 Better systems give lower plant liability
15 Liability concerns are a large driver of behavior

COST AND CONSTRAINT CONCERNS

16 Production is the number one priority
17 Connection: large firms, big budgets, and Environmental behavior
18 Firm must be efficient and make money, cost efficiency
19 Making money is the only motivator
20 Financial cost of environmental behavior is huge
21 Must spend on environmental behavior or close down
22 Open cheque book for environment
23 Benefits from good E behavior more than economic
24 Impacts stockholder confidence, financial constraints, budgets
25 Aware of firm economic power in community

GOVERNMENT

POWER OF REGULATION

26 Regulation establishes level playing field
27 Government controls timing of regulatory change
28 Regulation is number one driver in short-term
29 Regulation safeguards community and environment
30 Regulation is expensive to firm and government, not needed
31 Regulation will get tougher and broader, could shut you down

MOTIVATION OF GOVERNMENT FOR REGULATION

32 Government afraid of public, responds, wants to look good
33 Govt hands-off to environment, economic concerns
34 Environmental awareness and technical knowledge drives government

FIRM DEALING WITH REGULATION

35 Continuous improvement, pro-active, create buffer
36 Interpretation of regulation as important as regulation
37 Government negotiates on regulation, personal history and trust
38 Report honestly, report everything
39 Firm and government face the same pressures
40 Worried about meeting current regulation, fines for violations

GOVERNMENT COMPETENCE

41 Government ineffective and incompetent
42 Industry could be self regulating, leads government
43 Regulation irrelevant, firms regulate themselves

CUSTOMER COMPARATIVE EXPRESSED CONCERN

CUSTOMER SATISFACTION

44 Customer is the number one stakeholder and driver
45 Can win awards for customer satisfaction
46 Need good environmental behavior for customer satisfaction

FIRM MUST EDUCATE CUSTOMER

47 Customer needs to be educated by firm
48 Customer needs to understand firm position in Industry
49 Help customer with safe product usage

WHAT DO CUSTOMERS WANT

50 Customer may seek the lowest price
51 Recognition for environmental excellence a competitive edge
52 Quality product and lower price is the real strength of the firm

COMMUNITY

POWER OF COMMUNITY

53 Need to be pro-active to get message out to community
54 Need public on your side, public sets ultimate standard
55 Community can influence government
56 Try to keep the public satisfied, answer their concerns
57 Community is powerful and can punish firm

PUBLIC EXPECTATIONS, PASSIVITY

58 Public expectations are constantly increasing
59 Community concern is mostly health, safety and Economic
60 Public is passive, ignorant, and doesn't care
61 Public is afraid, emotional. and concerns are personal

IMAGE AND PUBLIC RELATIONS

62 Firms have negative public image, seen as all the same
63 Firm must be a good neighbor, contribute to community
64 Public relations function is critical
65 Concern about activists and media

PUBLIC BEHAVIOR AND INFORMATION

66 Community pollutes worse than the firm, firm safer than home
67 Community learns from employees, employees parts of community
68 Firm learns from stakeholders, public not single entity
69 Disasters anywhere in world raise public consciousness

INTERNAL

EMPLOYEES AND THE UNIONS

70 Concerns with the Unions
71 Employee and peer pressures
72 Pressures on employees from family and friends
73 A satisfied employee is a happy employees
74 Firm disciplines workers for poor environmental performance
75 Firm supplies an abundance of information for employee
76 Firm has many long-term employees, many senior staff

FIRM INTERNAL SYSTEMS, AUDITS

77 Firm audits safety, health and environmental behaviors
78 Firm audits suppliers for safe environmental behaviors
79 Much autonomy from head office
80 Spending huge amounts of money sends a message
81 Responsibility includes timely behavior
82 Internal systems hinder environmental improvement
83 Firm has internal competition for environmental funds

VALUES, CULTURE, LEADERSHIP

84 Vision statements, personal responsibility, firm values
85 Environmental awareness of senior executives, responsible culture
86 Have a longer term and more environmental focus than before
87 Responsible Care Program, CCPA standards
88 Firm a model for the Industry, performance pride
89 Number one priority health and safety, safer workplace

INTERNATIONAL AWARENESS

90 International pressures and awareness
91 Firm has an awareness of international incidents
92 International pressures and standards affect firm practice

GOOD BEHAVIORS ALREADY ACHIEVED

93 The best projects are already done, technological limits
94 Environmental incidents can be contained, preventable accidents
95 Technology allows change and improvement

OTHER FIRMS

96 Insecurity and inferiority complex about other firms
97 Help other firms with environmental advice and help
98 Best achievement by any firm should set new standard
99 Pressures from other firms, competitive advantage
100 More pressure on large firms because small firms lack money

APPENDIX H

ECONOMIC
COMPARATIVE EXPRESSED CONCERN -- ALL FIRMS

	not mentioned.	Low	. Med	.High
EFFICIENCY CONCERNS				
Efficiency (less waste) is also a lower liability	.BCDF	.A	.E	.
Large projects cause stalling in small projects	.ACDEF	.	.B	.
Firm wants efficiency in environmental spending	.C	.	.ABF	.DE
Improvements become more expensive over time	.BF	.	.AD	.CE
Being pro-active not that expensive	.BCDF	.A	.	.E
Environmental projects usually don't show return	.	.AF	.BCDE	.
Some behaviors very expensive but must be done	.BDE	.C	.A	.F
LIABILITY CONCERNS				
Risk management because of liability awareness	.B	.C	.AD	.EF
Economic analysis is only meaningful analysis	.ABE	.C	.D	.F
Pressures from banks and insurance companies	.CEF	.	.AD	.B
Personal liability	.BD	.	.CEF	.A
Liability is a future economic cost	.F	.	.ABD	.CE
Environmental performance impacts economic performance	.F	.	.ABD	.CE
Better systems give lower plant liability	.ACF	.	.D	.BE
Liability concerns is large driver of behavior	.	.F	.BD	.ADE
COST AND CONSTRAINT CONCERNS				
Production is the number one priority	.BE	.C	.AD	.F
Connection between large firms with big budgets and Env beh	.ABC	.E	.	.DF
Firm must be efficient and make money, cost efficiency	.	.	.	.ABCDEF
Making money is the only motivator	.ABE	.C	.	.DF
Financial cost of environmental behavior is huge	.	.F	.C	.ABDE
Must spend on environmental behavior or close down		.BE	.C	.ADF
Open cheque book for environment	ABEF	.	.D	.C
Benefits from good E behavior more than economic	.F	.DE	.ABC	.
Impacts stockholder confidence, financial constraints, budgets	.	.AB	.C	.DEF
Aware of firm economic power in community	.ABCDE	.		.F

GOVERNMENT COMPARATIVE EXPRESSED CONCERN -- ALL FIRMS

POWER OF REGULATION

Regulation establishes level playing field	ACDEF		.B	
Government controls timing of regulatory change	.CE	.A	.B	.DF
Regulation is number one driver in short-term	CE		B	.ADF
Regulation safeguards community and environment	.ADF	.	.BCE	.
Regulation is expensive to firm and government, not needed	.EF	.C	.D	.AB
Regulation will get tougher and broader, could shut you down	.	.E	.BCD	.AF

MOTIVATION OF GOVERNMENT FOR REGULATION

Government afraid of public, responds. wants to look good	.	.A	.BCF	DE
Govt hands-off to environment, economic concerns	.C	.A	.BDF	.E
Env awareness and tech knowledge drives govt	.BD	.A	.EF	.D

FIRM DEALING WITH REGULATION

Continuous improvement, pro-active, create buffer	.	.C	.DEF	.AB
Interpretation of regulation as important as regulation	.DCE	.	.B	.AF
Govt negotiates on regulation, personal history and trust	.	.E	.ACD	.BF
Report honestly, report everything	.DE	.	.B	.ACF
Firm and government face the same pressures	.ABCE	.	.F	.D
Worried about meeting current regulation, fines for violations	.	.ABCE	.D	F

GOVERNMENT COMPETENCE

Government ineffective and incompetent	.AC	.F	.BE	.D
Industry could be self regulating, leads govt	.F	.B	.AC	.DE
Regulation irrelevant, firms regulate themselves		.AF	.BD	.CE

CUSTOMER COMPARATIVE EXPRESSED CONCERN -- ALL FIRMS

CUSTOMER SATISFACTION

Customer is the number one stakeholder and driver	.ABDF	.		.CE
Can win awards for customer satisfaction	.ABCDF			.E
Need good environmental behavior for customer satisfaction	.ABDEF	.		.C

FIRM MUST EDUCATE CUSTOMER

Customer needs to be educated by firm	.B	.AF	.DE	.C
Customer needs to understand firm position in Industry	.BD	.AF		.CE
Help customer with safe product usage	.ABD	.	.F	.CE

WHAT DO CUSTOMERS WANT

Customer may seek the lowest price	.ABF	.	.CE	.D
Recognition for Environmental excellence a competitive edge	.DF	.A	.BE	.C
Quality product and lower price is the real strength of the firm	.ABDF	.	.C	.E

COMMUNITY
COMPARATIVE EXPRESSED CONCERNS -- ALL FIRMS

POWER OF COMMUNITY

Need to be pro-active to get message out to community	.	.FE	.ABD	.C
Need public on your side, public sets ultimate standard	.F	.	.CDE	.AB
Community can influence government	.F	.	.AC	.BDE
Try to keep the public satisfied, answer their concerns	.	.F	.ACDE	.B
Community is powerful and can punish firm	.	.F	.DE	.ABC

PUBLIC EXPECTATIONS, PASSIVITY

Public expectations are constantly increasing		.DEF	.AC	.B
Community concern is mostly health, safety and Economic	.ACDE		.B	.F
Public is passive, ignorant, and doesn't care		.	.CEF	.ABD
Public is afraid, emotional and concerns are personal	.	.CEF	.AD	.B

IMAGE AND PUBLIC RELATIONS

Firms have negative public image, seen as all the same		D	CE	.ABF
Firm must be a good neighbor, contribute to comm		F	.ABD	.CE
Public relations function is critical	DEF	.AC		.B
Concern about activists and media		.CF	.ADE	.B

PUBLIC BEHAVIOR AND INFORMATION

Community pollutes worse than the firm, firm safer than home	.C	.DF	.ABE	
Community learns from employees, employees parts of comm		.AF	.BDE	.C
Firm learns from stakeholders, public not single entity	.ABCF		.ED	
Disasters anywhere in world raise public consciousness			.BDEF	.AC

INTERNAL
COMPARATIVE EXPRESSED CONCERNS -- ALL FIRMS

EMPLOYEES AND THE UNIONS

Concerns with the Unions	.DCEF	.B	.A	
Employee and peer pressures	.E		.ABDF	C
Pressures on employees from family and friends	.BCEF	.A	.D	
A satisfied employee is a happy employees	.DE		.F	.ABC
Firm disciplines workers for poor environmental performance	.ACE		.BDF	
Firm supplies an abundance of information for employee	.F	.ACE	.BD	
Firm has many long-term employees, many senior staff	.BCEF	.D		.A

FIRM INTERNAL SYSTEMS, AUDITS

Firm audits safety, health and environmental behaviors	.CF	.A	.BDE	
Firm audits suppliers for safe environmental behaviors	.BCDF	.A	.E	
Much autonomy from head office	.CF	DE	.AB	
Spending huge amounts of money sends a message	.DF		.A	.BCE
Responsibility includes timely behavior	.BCDF		.A	
Internal systems hinder environmental improvement	.ABCE	.DE		.F
Firm has internal competition for environmental funds	.ACDEF			.B

VALUES, CULTURE, LEADERSHIP

Vision statements, personal responsibility, firm values		.F	.DE	ABC
Env awareness of senior executives, responsible culture	.F		.ADE	.BC
Have a longer term and more Env. focus than before	.C	.D	.F	.ABE
Responsible Care Program, CCPA standards	.D	.CF	.BE	.A
Firm a model for the Industry, performance pride	.DF	A	.E	.BC
Number one priority health and safety, safer workplace			.ADEF	BC

INTERNATIONAL AWARENESS

International pressures and awareness		.AEF	.BC	.D
Firm has an awareness of international incidents		.AF	.CDE	.B
International pressures and standards affect firm practice		.AEF	.BC	.D

GOOD BEHAVIORS ALREADY ACHIEVED

The best projects are already done, technological limits	CF	.D	.A	.BE
Env. incidents can be contained, preventable accidents	.DE	.F	.AB	.C
Technology allows change and improvement	.CF		.ADE	.B

OTHER FIRMS

Insecurity and inferiority complex about other firms	.ABCDE			.F
Help other firms with environmental advice and help	.F	.AE	.BCD	.C
Best achievement by any firm should set new standard	.DF	.A	.C	.BE
Pressures from other firms, competitive advantage		.AC	.B	.DEF
More pressure on large firms because small firms lack $		.AB	.CE	.DF

APPENDIX I FIRM G: THE GENERIC FIRM

This research has identified the major concerns of a hypothetical and generic chemical firm. To determine which indicators were considered important overall by the firms, the same point system described earlier (three points for a high concern, two points for a medium concern, and one point for a low concern) was used, and 25 indicators with twelve or more points identified. Examining these twelve-plus point indicators, the following port-folio of concerns is apparent.

Economic Indicators:

Must be efficient and make money	18 pts
Cost of environmental behavior is very high	15
Liability as a driver	14
Must spend money or close down	13
Environmental behavior creates investor confidence	13
Wants efficiency in environmental spending	12
Liability is a future economic cost	12
Env. performance effects economic performance	12

Government and Regulation

Regulation will get tougher	13
Firm can negotiate on regulation with govt	13
Continuous improvement is necessary	13
Regulation is irrelevant	12
Government is afraid of the public	12

Community

Community is passive and ignorant	15
Firms have a negative public image	14
Community is powerful and can punish firms	14
Firm must be good neighbors to the community	13
Community can influence the government	13
Need the public on your side	12
Must keep the public satisfied	12

Internal

Vision statements, leadership values important	14
Number one priority is health and safety	14
Pressures from other firms	13
Long-term focus for the firm	12
Env. awareness of senior executives is important	12

To summarize:

Firm A is High on 12 of the 25 indicators, and Medium or High on 21 of 25.
Firm B is High on 14 of the 25 indicators, and Medium or High on 23 of 25.
Firm C is High on 8 of the 25 indicators, and Medium or High on 21 of 25.
Firm D is High on 10 of the 25 indicators, and Medium or High on 23 of 25.
Firm E is High on 13 of the 25 indicators, and Medium or High on 22 of 25.
Firm F is High on 7 of the 25 indicators, and Medium or High on 13 of 25.

The beliefs or concerns that received the most attention from the six firms are:

		L	M	H	pts
Econ:	Firm must be efficient and make money	0	0	6	18
Econ:	Cost of environmental behavior is very high	1	1	4	15
Com:	Community is passive and ignorant	0	3	3	15
Econ:	Liability concern is a large driver	1	2	3	14
Com:	Firms have a negative public image	1	2	3	14
Com:	Community is powerful and can punish	1	2	3	14
Int:	Vision statements, Leadership values	1	2	3	14
Int:	Number one priority is health and safety	0	4	2	14

Firm G believes that the corporation must be efficient and has a responsibility to investors and owners to make money. Environmental behavior and action is often very expensive, but the firm has no choice but to comply with government and community expectation, especially as non-compliance could lead to liability costs both on the firm and individuals working for the firm. The community is viewed as both powerful and passive, and efforts must be made to maintain a satisfied public, especially since the chemical industry generally has a very negative public image. Firm G expresses belief about the value of vision statements and leadership concerns, and believes that the number one priority of the responsible firm is to health and safety issues.

These concerns are understood, but without the depth of understanding gained as with each of our sample firms A to F, judgment cannot be made as to what these particular generic beliefs and concerns mean to the generic firm, or what behavior or action may result as a consequence of these beliefs and concerns. We do not know, for example, if these concerns result in a generally re-active keep-quiet and out-of-sight stance or a pro-active public relations and community education stance. Does firm G take advantage of public apathy to maximize profits even with ecological cost, or does firm G express more concern about future liability and create a more benign production process even with short-term profit loss or cost?

Although the generic firm's concerns can be identified, without knowledge of specific firm culture and leadership orientation, consequences of these concerns cannot be predicted.

APPENDIX J SUMMARY DATA ANALYSIS TABLES

The Creation of Summary Tables

These tables summarize and organize the data in a way that makes the results of this research clearer. The following work shows the differences in concern and perceived importance of the factors for each firm. These tables were devised in the following manner.

First: All transcripts from the interviews with all executives and operators from the six firms were coded using principles of coding practice from grounded theory (Strauss and Corbin, 1990). Initially 260 indicators of various pressures or factors regarding environmental behavior were identified. These were eventually condensed to one hundred indicators.

Second: These one hundred indicators were themselves coded and divided into twenty categories (see Appendix G). As an example seven of the one hundred indicators were coded as Efficiency concerns.

Third: These twenty categories resulted in five main pressures regarding corporate environmental behavior being identified. These major pressures are Economic, Government and Regulatory, Customer, Community, and Internal. There are 25 indicators under Economic concerns, 18 indicators for Government and Regulation, nine for Customer concerns, 17 for Community concerns, and 31 indicators for Internal concerns. The process has evolved from 260 indicators of concern to five pressures. The data from all six cases is organized in this format.

Fourth: The expressed concern from each firm about each of the one hundred indicators was ranked on a scale from 'Not Mentioned', to 'Low concern', to 'Medium concern', to 'High concern'. These rankings require researcher judgment of the data, and are confirmed from the 1322 data quotes supporting the analysis in the six cases (see Appendix A through F). A difference in expressed concern is apparent between the six firms regarding the categories (See Appendix H).

Fifth: Table One summarizes these ratings for the one hundred indicators for each of the six firms. A numerical value was given for each ranking. Several systems of rating these concerns were tried, but the simplest one of three points for an 'High' concern, two points for a 'Medium' concern, one point for a 'Low' concern, and zero points for a 'Not Mentioned' concern was found to be suitable, and consistent with the final results obtained from other more complex systems that were experimented with. For example, under Economic pressure with three major categories and 25 indicators, firm A identified five sub-headings as a High concern, nine as a Medium concern, and 4 as a Low concern. Seven of the 25 were not specifically mentioned. Firm A had expressed a concern equivalent to (5x3, +9x2, +4x1) thirty-seven regarding Economic Pressures. The number 37 itself is meaningless except as a indicator of relative importance of economic factors compared to the other four pressures in firm A itself, but with a skewness examined below.

Sixth: Two more calculations have to be done before these results are comparable either within firm or between firms. Because of the unequal number of indicators examined per pressure these results are skewed in comparing the results against other pressures in the same firm. Table One presents the raw data, and this is mathematically adjusted to account for varying numbers of indicators per category, creating Table Two. For example, a total of 25 indictors are given for Economic Pressures, but only 17 indicators are used for the Community category. This imbalance in the number of indicators creates an automatic imbalance in the weightings of each category, and this has now been equalized, while maintaining the exact comparative nature of the information in Table 1 for each firm. Table Two is only a transition table leading to Table 3.

Seventh: Table Three creates equivalency across all six firms and balance the unequal number of pages of transcript and data quotes per firm. For example, firm A has a total of 314 data quotes while firm D has 210, and so firm A may appear more concerned than firm D in all categories, but without this final mathematical adjustment these differences can be attributed to the number of data quotes available for analysis. In Table Three, these numbers of quotes per category per firm are translated into percentages of total expressed concern per firm. These final numbers have now been adjusted for relative data size and also for number of identified sub-topics and so are fully equivalent, and form the definitive comparable table. These numbers do reflect a comparable standing per firm and per pressure of expressed concern from each firm.

RESEARCHER RATING OF FIRM CONCERN - SUMMARY TABLES*

* This summary (and the next several pages) gives the ratings given by the researcher for each concern expressed per category (see sequence point number 6 above).

		0 points	1 pt	2 pts	3 pts	
ECONOMIC		Not Mentioned	Low	Med	High	Total per firm
Efficiency Concerns						
Firm	A	1	3	3	-	9
	B	4	-	3	-	6
	C	4	1	1	1	6
	D	4	-	2	1	7
	E	2	-	2	3	13
	F	4	1	1	1	6
Liability Concerns						
Firm	A	2	-	4	2	14
	B	3	-	3	2	12
	C	2	2	2	2	12
	D	1	-	6	1	15
	E	2	-	1	5	17
	F	4	1	1	2	9
Cost and Constraint Concerns						
Firm	A	4	1	2	3	14
	B	5	2	1	2	10
	C	2	2	4	2	16
	D	1	2	1	6	22
	E	4	3	-	3	12
	F	2	1	-	7	22

Conclusion:

Economic Concerns		Totals
Firm	A	37
	B	28
	C	34
	D	44
	E	42
	F	37

GOVERNMENT AND REGULATORY CONCERNS

		Not mentioned	Low	Med	High	Points
Power of Government						
Firm	A	2	1	-	3	10
	B	-	-	5	1	13
	C	3	1	2	-	5
	D	2	-	2	2	10
	E	4	1	1	-	3
	F	3	-	-	3	9
Motivation of Government						
Firm	A	-	3	-	-	3
	B	1	-	2	-	4
	C	2	-	1	-	2
	D	-	-	1	2	7
	E	-	-	1	2	7
	F	-	-	3	-	6
How to Deal With Regulation						
Firm	A	1	1	1	3	12
	B	1	1	2	2	11
	C	2	2	1	1	7
	D	2	-	3	1	9
	E	3	2	1	-	4
	F	-	-	2	4	1
Government Competence						
Firm	A	1	1	1	-	3
	B	-	1	2	-	5
	C	1	-	1	1	5
	D	-	-	1	2	7
	E	-	-	1	2	7
	F	1	2	-	-	2

Conclusion: Government and Regulatory Concerns

		Total
Firm	A	22
	B	33
	C	19
	D	33
	E	21
	F	33

CUSTOMER CONCERNS
Customer Satisfaction
Firm Must Educate Customers
What Customers Want

		Not Mentioned	Low	Med	High	Points
Firm	A	6	3	-	-	3
	B	8	-	1	-	2
	C	1	-	2	6	22
	D	7	-	1	1	5
	E	1	-	3	5	21
	F	6	2	1	-	4

INTERNAL CONCERNS

Employees and Unions

Firm	A	1	2	2	2	12
	B	2	1	3	1	10
	C	4	1	-	2	7
	D	2	1	4	-	9
	E	6	1	-	-	1
	F	4	-	3	-	6

Firm Internal Systems

Firm	A	2	2	3	-	8
	B	3	-	2	2	10
	C	6	-	-	1	3
	D	4	2	1	-	4
	E	4	1	1	1	6
	F	4	-	2	1	7

Values, Culture, Leadership

Firm	A	-	1	2	3	14
	B	-	-	1	5	16
	C	1	1	-	4	13
	D	2	1	3	-	7
	E	-	-	5	1	13
	F	2	2	2	-	6

International Awareness

Firm	A	-	3	-	-	3
	B	-	-	2	1	7
	C	-	-	3	-	6
	D	-	-	1	2	7
	E	-	2	1	-	4
	F	-	3	-	-	3

Good Behavior Already Achieved

Firm	A	-	-	3	-	6
	B	-	-	1	2	7
	C	2	-	-	1	3
	D	1	1	1	-	3
	E	1	-	1	1	5
	F	2	1	-	-	1

Other Firms

Firm	A	1	4	-	-	4
	B	1	1	2	1	8
	C	1	1	3	-	7
	D	2	-	1	2	8
	E	1	1	1	2	9
	F	2	-	-	3	9

Conclusion: Internal Concerns

		Points
Firm	A	47
	B	58
	C	39
	D	39
	E	38
	F	32

COMMUNITY CONCERNS

			Not Mentioned	Low	Med	High	Points
Power of Community							
	Firm	A	-	-	3	2	12
		B	-	-	1	4	14
		C	-	-	3	2	12
		D	-	-	4	1	11
		E	-	1	3	1	10
		F	2	3	-	-	3
Public Expectations							
	Firm	A	1	-	2	1	7
		B	-	-	1	3	11
		C	1	1	2	-	5
		D	1	1	1	1	6
		E	1	2	1	-	4
		F	-	2	1	1	7
Image and Public Relations							
	Firm	A	-	1	2	1	8
		B	-	-	1	3	10
		C	-	2	1	1	7
		D	1	1	2	-	5
		E	1	-	2	1	7
		F	1	2	-	1	5
Public Behavior and Information							
	Firm	A	1	1	1	1	6
		B	1	-	3	-	6
		C	2	-	-	2	6
		D	-	1	3	-	7
		E	-	-	4	-	8
		F	1	2	1	-	4

Conclusions: Community Concerns

		Totals
Firm	A	33
	B	41
	C	29
	D	29
	E	29
	F	19

TABLE ONE - SUMMARY OF POINTS ASSIGNED FOR EACH PRESSURE

INTERPRETATION:
This table only shows the number of points given each pressure. These results cannot be compared within the firm because of an unequal number of indicators per pressure. Likewise, comparison across the firms cannot be done because of an unequal number of data pages of transcript per firm, and therefore an unequal number of data quotes that might skew apparent concern per firm. These two problems will be resolved in Tables Two and Three.

COMPARABLE CONCERNS PER FIRM PER PRESSURE

	Economic	Govt	Customers	Community	Internal	
A	37	22	3	33	47	/142
B	28	33	2	41	58	/162
C	34	19	22	29	39	/143
D	44	33	5	29	38	/149
E	42	21	21	29	38	/151
F	37	33	4	19	32	/125
Indicators	(25)	(18)	(9)	(17)	(31)	

TABLE TWO

Transition Table - translation of Table One to compensate for unequal number of indicators per pressure.

Interpretation: Although expressed concern per pressure has now been mathematically adjusted to account for unequal number of indicators, the total number of quotes available for analysis from each firm is still unequal. The number of pages of transcript per firm might not have any influence on expressed concern, just confirming information already understood, but the risk is still present. Table Two still does not serve as a comparison among the firms. For example, the total number data quotes from Firm A (314 data quotes) gives firm A a larger potential for expressed concern than Firm D (210 data quotes). Table Two is only a transition to the percentage comparison presented in Table Three. Within firm comparison of pressures is possible using Table Two, but Table Three will be more useful.

	Economic	Govt.	Customer	Comm	Internal	Total Concern
A	148	122	33	195	150	/648
B	112	183	22	242	186	/745
C	136	105	244	171	125	/781
D	176	183	56	171	122	/708
E	168	117	233	171	122	/811
F	148	183	44	112	102	/589
	100 indictor equivalents	100	100	100	100	

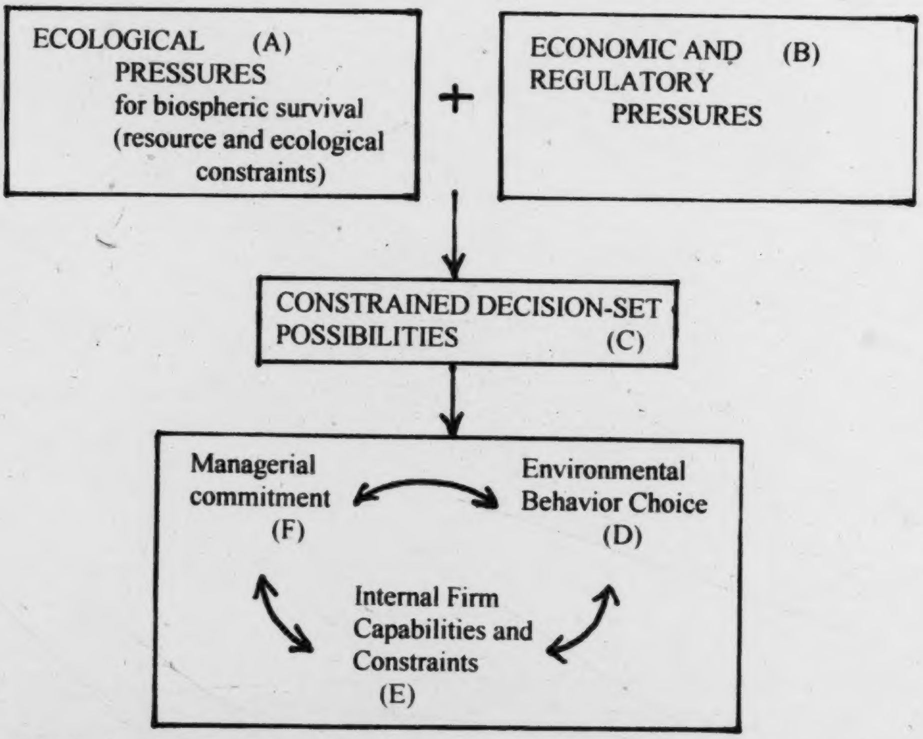
TABLE THREE

EACH PRESSURE EXPRESSED AS A PERCENTAGE OF EXPRESSED CONCERN

	Economic	Govt	Customer	Commun	Internal	
A	23 %	19 %	5 %	30 %	23 %	/100%
B	15	24.5	3	32.5	25	/100
C	17.5	13.5	31	22	16	/100
D	25	26	8	24	17	/100
E	21	14	29	21	15	/100
F	25	31	7	19	17	/100

Interpretation: Each concern per pressure is now expressed as a percentage of expressed concern for the firm. Cross-firm and intra-firm analysis can now be done using this Table.

APPENDIX K : A MODEL OF CONSTRAINED CHOICE


ECOLOGICAL (A) PRESSURES for biospheric survival (resource and ecological constraints)
+
ECONOMIC AND (B) REGULATORY PRESSURES
CONSTRAINED DECISION-SET POSSIBILITIES (C)
Managerial commitment (F)
Environmental Behavior Choice (D)
Internal Firm Capabilities and Constraints (E)

AB: Constrain and pre-determine what is necessary for firm survival.

C: Includes information about what is not allowed as well as about what is expected, and establishes minimum levels of economic and regulatory performance.

DEF: These are strongly inter-related. Choice is a sub-set allowed after context constraints are considered, and secondly constrained by firm specific history and cultural expectations.

Note: The current power of (B) overwhelms (A), and so allows decision making possibilities (C) that would be impossible if (A) was stronger. Regardless, (D) is still related with internal firm abilities and constraints (E) combined with corporate leadership commitment or desire(F).

If sustainable behavior became the preferred model for government and industry (a stronger A to offset the current strength of B), this model would still show these same inter-actions. A somewhat similar model has been presented by Wood (1993).

(B-1). Regulated Minimum Standards: Public Policy Constraint:

Regulation is an institutional pressure demanding a specific level of performance under threat of severe economic and social punishments, including closure. Since the mid 1960s, a vast regulatory system has been established in North America, and this system has constrained business activities by demanding behaviors that are outside of marketplace demands (Buchholz, 1989). This data confirms that all firms believe that only by meeting regulation standards, or negotiating exceptions, can the firm survive.

(B-2). Stockholder and Marketplace Demands: The Economic Constraint:

The firms believe that the prevailing interpretation of fiduciary responsibility in Western society is to maximize profit within legal and regulatory constraints (Friedman, 1970). Taken to extreme, this profit maximizing takes place regardless of human or environmental impact, while staying within the boundaries of the law. This data confirms that the chemical firms of this sample believe they have a broader constituency than just stockholders but are clear that serious constraints inhibit their behavior on many fronts. In one sense, stockholders do create "ceaseless and limitless" pressures that keep decision-makers from "looking too broadly outward, too deeply inward, or too far into the future" (Everett, Mack, and Oresick, 1993: 76). These constraints are seen as beyond firm control, and part of a broader global marketplace system.

(C). By meeting both regulatory and economic demands, the firm is able to exercise some choice regarding further behavior. The firm now enters the realm of environmental behavior beyond regulatory requirement, and very possibly at the expense of short-term profit. The firms undertake behaviors that range from doing little to doing much. The data suggests that these responses are often ad hoc because of perceived uncertainty in the external environment.

The response pattern on the low end is passive resistance, supported by bargaining with regulators for slack interpretation (enforcement), with the firm eventually achieving compliance. This defensive stance of eventual compliance results in increased production costs, because end-of-pipe solutions are usually expensive and impede more innovative or cost-efficient process or system solutions. The responsive corporation appears to be philosophically more sympathetic to environmental concerns and ecological sustainability, but the data does not support a philosophical basis for environmental pro-active behavior from any of the firms.

This data strongly suggests that going beyond present regulation means anticipating future regulation, and so even "enlightened" management implies a preoccupation with regulation and pragmatic concerns about future expected behavior and potential liabilities.

Different behaviors are available to the firms. These alternatives change, as voluntary behaviors tend to become mandated behaviors over time. This data shows that all firms undertake some behaviors beyond the minimum, and usually in some combination of the following: (a) behavior favorable to the natural environment ranging from little to much over the regulated standard; (b) public relations and issues management efforts which can be in lieu of environmental action behavior; and (c) attempts to influence and control the external environment through stakeholder management, negotiation with government regarding interpretation or enforcement of regulation, or active intervention in the public policy process through lobbying efforts. Compliance with regulation is required but the firms' perception is that latitude is allowed by government to allow each firm to achieve compliance at least partly on its own terms.